CHAPTER 1

INTRODUCTION

Once as a member of a Technical and Further Education (TAFE) class, the writer recalls the introductory words of one of the part-time teachers who taught on the course program, “Have a good look at the person you’re sitting next to—they won’t be here by the end of the semester!” It is not difficult to imagine that many in that class would have felt somewhat demoralised through the prediction of a teacher in a position to know such things. For many of those in the class who had been away from education for a decade or more, and with already vulnerable self-esteem levels, perhaps it was a very real possibility that the journey to become one of those attrition casualties had just been set in motion by the remark itself. Many years later and as a full-time lecturer now standing before new students in TAFE classrooms filled to capacity at the beginning of every Spring semester, it was alarming to discover that these words of the part-time teacher, however disturbing, were in fact an accurate depiction of the attrition rates throughout TAFE colleges then, as much as they are today. For example, MacDonald (1984) reported that over the period of an average three year part-time business course, TAFE was estimated to lose between 32% and 47% of enrollees before the end of the first year, and up to 87% of the original enrolments by the end of the final year of a three year course. Similarly in the U.S., and almost two decades later, only 45% of college first-time, full-time students who attended for the purpose of attaining a degree graduated in the period 1998-2001, with 32% of students failing to return to college for the second semester or enrol in another institution of higher education (Southern Regional Education Board, 2003).
Recent research into student attrition rates has identified that the majority of students in higher education are now non-traditional (i.e. between the ages of 25 and 60, working in a part- or full-time capacity, and attending a non-residential college facility to undertake a part-time study program). For example, in 2002 TAFE New South Wales (NSW) reported that almost 300,000 students who had registered their enrolment were over the age of 25 years, and that over 87% of enrolments were for part-time studies (Statistics Newsletter:Enrolment Summary 1999-2001, 2002). Furthermore, Streekfuss and Waters (1990) have reported that the mature-age student entering higher education as typically not studied in the previous ten years before undertaking the course. Cllossberg, Lynch and Chickering (1989) suggest that this long period of absence from study is precisely why higher education should be thought of differently for mature-age students. In support of this position they argue that in contrast to traditional students, mature-age students have diverse characteristics, a vast range of life circumstances, more varied past experiences, are more concerned with practical application, and have greater self-determination and acceptance of responsibility. All of which, according to Erka (1989), results in the student role becoming a secondary activity for mature-age part-time students which contributes to higher rates of attrition. Researchers (e.g. Dorman, 1993; Stolar, 1991; Brooks, 1991) have found significantly higher attrition rates for the non-traditional student, outcomes which suggest that retention programs could be thought of differently for the mature-age student population in higher education (Kerka, 1989; Pacheco, 1994).

Early research into attrition rates in higher education was underpinned by the notion that the reason for a student dropping out lay in some quality or combination of qualities in the student. As a consequence, much of past attrition research has been concentrated to individual or single sets of variables that characterise the circumstances the student and their relation to non-persistence. Issues typical of past investigations into attrition include student-oriented issues (e.g. employment demands, family responsibilities); institution-related factors (e.g. faculty-student interactions, provision of student facilities and services, administration and instructional processes, curriculum) and student perceptions relating to issues such as course utility, improved professional
status, and psychological stress. However, despite the breadth of attrition investigations, the most consistent aspect of attrition studies is the absence of a strong theoretical framework to underpin research (Hisada, 1988). Only during the last two decades have some attrition researchers undertaken their investigations from strong theoretical bases, typically utilising the theoretical models developed by the eminent attrition theorists Vincent Tinto and John P. Bean. The Student Integration Model (Tinto, 1975; 1982) posits that persistence patterns are directly impacted by the interaction between student and institution, with student continuance being dependent on the effectiveness of the social and academic integration of the student into the institution. The Model of Non-traditional Student Attrition (Bean, 1980; Bean & Metzner, 1985) proposes that mature-age student circumstances do not typically permit the opportunity for social integration into the institution, and posits that a student’s intent to leave is formed primarily from the interactions of four sets of variables, including student background, demographic, academic and psychological variables.

According to McInnis, James and Hartley (2000), past attrition literature indicate that one third of first year students actually consider withdrawing during the first semester. Further, many second and third year withdrawals are believed to follow from events that occur in the first year of study (Tinto, 1995). Referred to as the Theoretical Model of Non-Traditional Student Attrition, a model designed for the current research that draws upon the seminal work of Tinto and Bean, focuses on the first 6 to 8 weeks of TAFE courses—the dropout point in TAFE colleges which accounts for the largest, single episode of student attrition (Kambouri & Francis, 1994; Malicky & Norman, 1994; Quigley, 1995; White & Mosely, 1995). The model has two critical processes during this initial period which are theorised to be sequential and causal in their ordering. The first aspect describes the evaluation process undertaken by the student prior to or at the time of enrolment and the undertaking of the study commitment, while the second addresses the period (i.e. the first 6 to 8 weeks of the study program) where the student enters a process of re-evaluation of their course participation, and subsequent separation and disengagement from the study commitment is then commenced. The process is theorised to be spiralling in nature and continues until disengagement from the study
commitment is reached. This model design attempts to account for many of the mature-age part-time student variables that previous research has identified as having the potential to influence student withdrawal. However, the researcher-devised model theorises that the withdrawn student compensates with the failure of non-persistence by generating externally-based and socially accepted reasons for leaving in order to protect and maintain acceptable levels of self-concept.

Although the literature has proposed a great many potential impactors on a mature-age student’s participation in or withdrawal from a course of study, few studies in attrition have examined the influence of self-concept constructs regarding student non-persistence patterns. Past (see Harter, 1986b) and more recent research (see Marsh & Yeung, 1997) has established that self-concept acts not only as an important outcome variable in its own right but also as a mediating variable that facilitates the attainment of other desirable outcomes such as academic achievement and motivation. Byrne (1996) suggests that a “good” self-concept, and its relation to achievement, self-actualisation and self-acceptance, should be viewed as a worthy goal at any stage in life. Following over a decade of research examining self-concept research outcomes, Craven, Marsh and Burnett (1993, p. 92) report that enhancing self-concept across the life span is recognised internationally as a highly desirable goal in diverse settings ranging from the pre-school classroom to the retirement village, and that “the development of a positive self-concept is prized as a desirable outcome in and of itself as well as a mediator of an array of valued outcomes including enhanced educational and career aspirations, increased adoption of adaptive striving behaviours, and improved achievement/performance in educational and work settings”. Based on these postulates, the variables comprising the existing self-worth facets that mature-age students bring with them to TAFE may act as potentially powerful mediating variables to influence behavioural outcomes such as persistence or withdrawal.

Past self-concept research in attrition has typically utilised a single, global measure of the construct. However, even well-controlled interventions have not been shown to systematically affect self-concept despite many possible biases that would be
expected to produce changes in self-concept responses (e.g. placebo, halo and Hawthorne effects; acquiescence to the experimenter; post-group-euphoria etc.). Marsh, Richards and Barnes (1986a; 1986b) suggested two reasons for this lack of success. First, most research has been based on ill-defined measures of self-concept rather than on multidimensional measures where some of the dimensions are specifically relevant to the focus of the intervention. Second, the size of the effect is typically small relative to probable error because the intervention is weak or because a potentially powerful intervention is administered to only a small number of participants. Recent advances in theory and measurement provide a new basis for the design of powerful intervention programs that can systematically target self-concept and related facets to overcome the limitations of earlier research (see Craven, Marsh & Burnett, 2003 for an overview).

Theoretical models developed by Shavelson, Hubner and Stanton (1976) and the subsequent Marsh and Shavelson model (1985) have provided the means to effectively investigate multifaceted aspects of self-concept. The authors of these models suggest that a lack of a theoretical base had seen past self-concept research address itself to “substantive problems before problems of definition, measurement, and interpretation have been resolved” (Shavelson et al., 1976, p. 410). Craven et al. (2003) developed guidelines to provide a blueprint for the next generation of self-concept enhancement interventions. They suggested that self-concept enhancement program outcomes can be maximised by employing randomised designs, capitalising on previous research findings and theory to develop interventions, and targeting particular categories of students who are most likely to benefit from a self-concept enhancement intervention.

The primary purpose of the present investigation was to address some of the issues described above by critically analysing persistence behaviour and its relation to self-concept of the non-traditional student in TAFE settings. Three complementary studies comprised the present investigation. Study 1 was designed to identify a psychometrically sound multidimensional self-concept measurement instrument of salience to non-traditional TAFE students. Study 2 was designed to empirically test the impact of three different types of interventions on TAFE students’ self-concepts and persistence.
patterns. Study 3 was designed to identify factors that impact on TAFE students’ decisions to persist in or withdraw from their study utilising qualitative research methodology.

An important aspect of the quantitative component of the current research is the utilisation of strong and suitable methodology to examine hypotheses and research questions that are evaluated with powerful statistical tests. In regard to the use of reliable and valid measurement instruments, Marsh (1990b, p. 19) states, “Theory building and instrument construction are inexorably intertwined, and each will suffer if the two are separated”. Study 1 is therefore designed to test the psychometric properties of the Self Descriptive Questionnaire Version III (SDQ III; Marsh, 1990b) in order to identify a psychometrically sound, multidimensional self-concept measurement instrument for use with a specialised population of part-time mature-age TAFE students. This study provides the basis for the development of a TAFE-specific SDQ instrument by (a) extending the original SDQ III by including another four domain-specific self-concept subscales particularly relevant to mature-age TAFE students, (b) modifying the original SDQ III and the four new scale extension by constructing a short form version of the instrument through the selection of a subset of items used for each of the original 13 and four new domain-specific scales, and (c) establishing the convergent and discriminant validity of the instrument through tests of agreement between TAFE students’ and significant others’ responses.

Discovering variables that would accurately predict student persistence patterns has been a major focus throughout more than 80 years of attrition research in higher education. The identification of such variables would provide researchers with the direction to design an attrition intervention to improve student retention. Study 2 therefore sets out to (a) test within the TAFE environment the predictive value of factors posited in past attrition literature to predict student persistence, (b) test the impact of attrition intervention designs that are internally activated by the student or externally managed by the institution on TAFE students’ persistence patterns, and (c) elucidate to what extent participants who have experienced an intervention and who choose to persist
in TAFE studies display higher self-concept facets compared to students who have experienced an intervention and who choose to withdraw from TAFE studies.

Various researchers (e.g. Slark, 1989; Miles & Huberman, 1994) have recommended that a coalescing of quantitative and qualitative methodological approaches often provides the researcher with an opportunity to further explore, clarify and validate many of the issues that are critical to the investigation. However, few research undertakings in attrition have capitalised on qualitative research methodology. Study 3 therefore is designed to explicate students’ rationales for choosing to persist or withdraw from their course of study utilising structured qualitative research methods.

In summary, past attrition literature demonstrates that despite the extensive work done by researchers in persistence and intervention studies, retention rates continue to reflect the long history of high attrition in institutions of higher education (Gaither, 1992). Much of this research has in the main focused on the first year student in the university setting, examining population characteristics and circumstances that are distinctly different to those who attend TAFE colleges, and therefore calling into question the practice of developing retention strategies from research that may not be readily generalised from one type of higher education institution to another. The present study therefore makes a vital contribution to our understanding of persistence patterns in two major ways. Firstly the study focuses on Term 1 of the TAFE student study program, a period identified as one that accounts for the largest single episode of non-persistence in the student career, yet typically examined by attrition researchers as only one of the many components that comprise the student’s first year of course participation. Secondly, although few studies in attrition have examined the influence of self-concept constructs regarding student non-persistence patterns, fewer still have utilised the latest advances in research to test the nature and influence of multidimensional facets of self-concept rather than the single, global measure typically used in past self-concept research. Self-concept researchers (e.g. Hattie, 1986; Marsh & Craven, 1997; Marsh & Richards, 1988) have noted that intervention studies are plagued with methodological flaws including the use of weak interventions, the failure to incorporate a logical match between intended
outcomes and outcomes measured, the lack of utilisation of multidimensional instruments with construct validity, and the use of small sample sizes and weak experimental designs. New enhancement studies embodying recent advances suggest that there is a greater probability of interventions succeeding if (a) specific facets of self-concept (e.g. Emotional Stability, Esteem and Social Relations self-concepts) are targeted, (b) stronger measurement instruments are utilised, and (c) treatments emulate and foster desirable naturally occurring processes.

The current study therefore demonstrates an approach designed to avoid some of the methodological problems and limitations common to attrition and self-concept research by (a) grounding the investigation in the best available attrition and self-concept theory, (b) employing an eclectic multi-method research design based on sound research methodology to enrich the findings, (c) developing and administering a multidimensional measure of self-concept of salience to TAFE students to adequately account for the multidimensionality of self-concept in the research design, (d) employing interventions that target specific facets of self-concept related to the goals of the intervention, and (e) conducting sophisticated statistical analyses.
CHAPTER 2
THE NATURE AND INCIDENCE OF STUDENT
ATTRITION IN HIGHER EDUCATION

Introduction

This chapter examines the incidence and nature of attrition in higher education. The literature in this field is extensive due to the striving of researchers to understand and improve student retention rates and the need for institutions to better manage their resources. The terminology used in this area of educational research is extensive and complex, and reflects the diversity of approaches to the subject. In this chapter, firstly an overview of the definitions of terms to be used in this study is therefore presented. Secondly, the attrition situation pertaining to the educational organisation that is the focus of the current study, the Technical and Further Education (TAFE) Commission of New South Wales, is discussed. Thirdly, key theories and models that have been developed to identify circumstances under which students are most likely to withdraw are reviewed, along with research testing the relation of key constructs to attrition. Finally, a model developed for the current study which considers the non-traditional student (i.e. the mature-age, part-time and commuting student) in the TAFE environment is presented.

Terms Used in Attrition Studies

The bulk of the research into attrition rates in higher education utilise an array of terms that after eighty years of use, still remain ill-defined. There are two possible exceptions to this situation, namely the terms “higher education” and “attrition”. In regard to higher education, it is generally accepted that the term applies to nationally-
accredited post-secondary school programs of study, at the degree, diploma and certificate levels (Forsyth & Furlong, 2003). Attrition is typically defined as the rate of student withdrawal from programs of study in which they had enrolled. However, even attrition has been referred to with various other descriptors, such as “decliners” (Wilder, 1993), “student leaving” (Tinto, 1988), and “student wastage” (Johnes, 1990), but essentially these terms have all been taken to describe a general concept of student non-persistence. Other terms used in the study of attrition have not fared so well, however, with the meaning of almost every other general descriptor used in this area of research being totally dependent on the researcher(s) using them.

There are numerous descriptors used to identify the process when a student who has withdrawn from their program of study. For example: Boud and de Rome (1980) referred to the process as “discontinuation”; Allen (1984) favoured the term “non-persistence”; and Cabrera, Stampen and Hansen, (1990) described the withdrawal process as a “departure decision”. The term most often used in the literature however is “dropout” (Summers, 2000). Yet, according to Tinto (1987, p. 3), the label of dropout is “the most frequently misused term of all the educational descriptors available”. He suggests that the term is used loosely to describe the actions of all students who leave higher education without achieving their qualification, regardless of the reasons or circumstances that resulted in their withdrawal. Examples from the literature demonstrate Tinto’s concern. For example, Artman and Gore (1992) defined dropout as the student who has failed to accomplish their educational goals and has no plans to take up further study. But in a study of student attrition at a distance university in the Federal Republic of Germany, Bartels (1982) reported that dropouts are considered to be students who have discontinued their studies, or who have changed their course of studies or the student category under which they first registered.

During the last two decades, the notion of a dropout being simply a student who has withdrawn from their program of study was made substantially more complex with the introduction of new terms and concepts regarding attrition rates. An increasing number of researchers have suggested that just because a student had not returned to their
study program the following semester, their absence did not necessarily mean they had dropped out (Yorke et al., 1999). Nielsen and Polishook (1984) believed that attrition rates were overstated, suggesting that “raw figures carry as “dropouts” students who transfer to other institutions, others who “stopout” and later return, and still others who originally enrolled for a course of study that does not culminate in a degree” (Nielsen & Polishook, 1984, p. 6). A study by Artman and Gore (1992) reported their investigation of non-returning students established that only 38% were actual dropouts. Research by Bonham and Luckie (1993) reported that more than 70% of first semester students who failed to return to the institution in the second semester considered themselves “stopouts” rather than dropouts, with most indicating that they intended to return to studies at some point in the near future. Despite the interest generated by the notion of “stopout” in attrition studies, there have been no outcomes from longitudinal studies where “actual” rates of student returns support students’ stated intentions to return to their studies.

Although the circumstance of a “stopout” student is problematic for establishing accurate attrition figures, the situation of the “transfer” student confounds the attrition data even more. It has only been the last two decades that attrition researchers have made mention of the fact that although some students might withdraw, they are not in fact dropping out of the education system but transferring to another course and/or another institution (Allen, 1994; 1984). Regardless of whether the student submits an official withdrawal notification, the activity would typically be recorded as part of the dropout statistics. Numerous and mostly legitimate reasons abound for transferring behaviour, and it is clear that such circumstances are not representative of “non-persistence” behaviour but in fact a change in preferences of study program. Bean (1982) however, disputes the practice of excluding transfer students from dropout rates, suggesting that dropping out should be defined as the cessation of enrolment of a student in an institution. Thus the unit of analysis for attrition investigation should be “an individual at a single institution” (Bean, 1982, p. 292).

Persistence and retention are perhaps the two terms most often used interchangeably in attrition research. Quigley (1997) defined persistence as the length of
time a student attends classes. Prather and Hand (1986) had defined persistence as either obtaining a degree or being registered for the ninth semester in a four year study program. Preston (1993) suggests that the traditional definition of student persistence, advanced by Vincent Tinto in 1975, is that of attendance until degree completion. This model, however, does not adequately reflect community college student attendance patterns at lower qualification levels (Preston, 1993). Numerous authors (see Shelton et al., 1995; Isaac, 1993) define retention as a series of levels at which students and the college persist and work to fulfil goals. This definition is based on the idea that there is no single number to measure an institution's effectiveness; retention is a joint effort between the student and the institutions; and the term “persist” refers to the process of retention, while the term “success” refers to the product (Shelton et al., 1995). In general terms, both descriptors have been used in reference to the number of students who continue to be enrolled in their course of study from one program level to the next until completion status is reached.

**Implications for the Present Study: Terms Used in Attrition Studies**

The terms used and the diverse interpretations of those terms by researchers may account for the many variations reported in attrition outcomes (particularly comparative studies of attrition interventions). Despite the tendency for researchers to favour a particular term, most attrition studies (see for example, Summers, 2003; Artman & Gore; 1992; Cabrera, Stampen & Hansen, 1990; Tinto, 1987) tend to use the terms “retention” and “persistence” interchangeably to describe the continuing student status of the individual from one specified level to the next, and the terms “withdrawn”, “dropout” and “non-persistence” to describe the individual who is no longer a participating student in the program of study in which they were once enrolled.

Because the current study examines the first term of the first semester of the participating students’ program of study, the circumstance of the “stopout” student are realistically not applicable. In any case, the lack of any evidence regarding the actual return rates of stop-outs supports this position. Further, officially notified transfer
students were not included in attrition rates. Hence the present investigation was
designed to address weaknesses in previous research by clearly operationalising
definitions of attrition of relevance to the current investigation.

**Historical Overview of Attrition Research**

**U.S. Attrition Research**

The history of attrition research has its beginnings in the United States. A search
of the literature on the attrition rates of students at tertiary institutions reveals substantial
research regarding traditional-age higher education students in full-time programs. Data
include statistics relating to graduation numbers, possible causes for student withdrawal
from full-time courses, and strategies designed to improve student retention rates.
Research regarding college student attrition first appeared in published form in 1924
(Stage, 1990) and has subsequently developed into one of the most popular areas for
higher education research.

However, outcomes to result from the research do not suggest much progress in
our understanding of the attrition problem or of the means to address it. Figure 2.1
provides a 100 year overview of B.A. completion rates in the United States, and aside
from the impact of the Second World War and the implementation of the GI Bill that
followed (1940–50), percentages indicate that attrition has remained relatively constant
despite the vast amount of attrition research during this time. As Figure 2.1 suggests,
there has been little change in completion rates (and therefore attrition rates) over a great
expanse of time. Yet, it would be reasonable to expect some impact resulting from the
host of improvements to education and training systems over these many decades, such
as: The advent and growth of public funded institutions, vastly improved and more
diverse course program designs (e.g. flexible delivery), study resources (e.g. computers),
institutional facilities (e.g. library resources, student classroom and recreational
accommodation); and community initiatives (e.g. significant increases in literacy rates).
Figure 2.1 100 years of B.A. completion rates in higher education in the United States (1880-1980) with estimated regression line.

Tinto (1982) suggests that despite the investment of billions of dollars in educational programs designed to enhance the likelihood that individuals would enter and persist within the higher education system, completion rates have remained constant at around 45%. Around the same time, Pantages and Creedon (1978) indicated that for every ten students who enter a four year college course in the United States, only four will graduate from that college four years later.

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1 According to Tinto (1982, p. 694), “These data, during the 1940-1950, reflect the combined impact of World War II and the U.S. GI Bill upon higher education. After an understandable decline in completion rates during the war, large numbers of veterans apparently took advantage of the GI Bill to re-enter higher education after the war. Interestingly, the average rate of completion over that period is about 52 percent or nearly the same as for periods before and after the war years. Thus, one can posit that the GI Bill served primarily to assist persons to complete programs interrupted by the war and did not influence individuals to enter anew.”
Lenning, Sauer and Beal (1980) reported that the average graduation rate for two-year institutions, three years after students commence studies, is between 40% and 65%. Quigley (1995) reported attrition rates of between 60% and 70% for adult basic education students. Even with extensive qualification of those to be included in attrition rates, similar outcomes have been found for student retention in the 21st Century. Only 45% of two-year college first-time, full-time students who attended for the purpose of attaining a degree or certificate graduated in the period 1998-2001, and that 32% of students failed to return to college for the second semester or enrol in another institution of higher education (Southern Regional Education Board, 2003).

This research raises questions as to the efficacy of past educational programs, and suggests that

We should be much more conservative in our projections regarding our ability to significantly reduce dropout in higher education at the national level. It seems unlikely that we will be able to greatly reduce dropout without some very massive and far-reaching changes in the higher educational system, changes that go beyond the mere surface restructuring and institutional differentiation that has marked past higher educational changes” (Tinto, 1982, p. 695).

**Government Sponsored Research on Attrition in Higher Education in Australia**

From an Australian perspective, several early government commissioned inquiries provide data on withdrawal rates at Australian universities and colleges of higher education. The Murray Committee Report (1958) referred to the high failure rate as one of the most disturbing aspects of higher education in Australia (see also West, Hore, Eaton, McKenzie & Thomas, 1985). It provided evidence that of the students who entered universities in 1951, only 35% graduated in the minimum time, and only 58% had graduated or were expected to graduate at all. In 1964, the Martin Report indicated student failure rates differed little from those found by the Murray Committee (West et
al., 1985). Although figures were not presented, the Martin Report (1964) also found that the probability of a part-time student completing their studies was much lower than that of the full-time student, viewing this method of study as an unsatisfactory and expensive form of education.

The first national study of university student attrition in Australia was the research undertaken by the Commonwealth Department of Education and Science in 1971 (see Parkinson, Hayton & Strachan, 1987). In that study, only the percentages of withdrawal rates were reported. The figures varied considerably with the different faculties and the rates also varied among the universities. The overall findings, however, showed that of the full-time students that entered universities in 1961, 37% graduated in minimum time and a total of 64% graduated eventually (i.e. by 1967). The graduation figure by 1967 for all part-time students for the 1961 intake was reported as only 29%. This is the first recorded piece of empirical evidence in Australia that considers the student who attends higher education in a part-time study pattern.

In 1979, the Williams Committee conducted a study of the 1971 university student intake and noted only a slight increase from the 1961 Commonwealth study in the number of students to graduate by 1977. The Williams Committee also conducted the only national study of student progress in higher education colleges (e.g. Colleges of Advanced Education), beginning with the students from the 1974 intake. From the multi-discipline colleges in the study, only 25% of full-time degree course students and 1% of the part-time students had completed their courses (Williams, 1979).

In 1990, the “Scott Report on Higher Education in New South Wales” focused on the restructuring of TAFE. The “Report” produced the outcomes of the 1988 course completion rates for 33 selected courses across four industry groups (vocational categories), including Aviation, Finance and Investment, Hospitality and Tourism, and Information Technology (totalling 36,866 enrolments). The poorest performing division was Finance and Investment, achieving an average completion rate of 6.5% (of 18,743 enrolments), and the Information Technology group achieved the best outcome (48.2%
of 11,063 enrolments). For courses with duration of between 1.5 years to 4 years, the
completion rate was 22.1% (of 29,287 enrolments; Scott, 1990).

In 2000, the Commonwealth Department of Education, Training and Youth
Affairs reviewed the statistics for higher education outcomes for the year 1999. They
reported that in Australia, more than one third of students in higher education fail to
graduate, and of those who do withdraw around half do so in the first year (Department

Research on Attrition in TAFE

TAFE has been the largest single higher education provider in the State of New
South Wales (NSW) for over 100 years. Its charter is to provide higher education
opportunities for diverse areas of basic and vocational education and training. TAFE
NSW is a semi-government authority that is comprised of eleven autonomous institutes,
which provide study programs that range from initial access courses to technical and
semi-professional level programs. A TAFE department is present in all states within
Australia, and each is based on the same educational model with the same basic charter.
TAFE NSW is primarily funded by the NSW State Government via Commonwealth
Government allocations to provide mainstream higher education courses to adults free of
tuition costs², allowing access to qualifications certified by the Australian National
Training Authority that range from Australian Quality Training Framework (AQTF)
Level I certificates to diplomas (AQTF Level VI), in the following divisions of industry
focus: Access; Business and Public Administration; Community Services, Health,
Tourism and Hospitality; Construction and Transport; Information Technology, Arts and
Media; Manufacturing and Engineering; and Primary Industry and Natural Resources.
Apart from mainstream course offerings, TAFE also provides distance education
(OTEN), and customised courses (TAFE Plus) and other specially designed programs for
clients at commercial rates. At the time of writing, TAFE NSW had met the quality
standards for International Standards Organisation (ISO) 9001 certification. For further

² Although a small administration charge is applied for the majority of mainstream courses.
discussion regarding the quality of TAFE NSW facilities and services to students, the reader is referred to Chapter 4.

Throughout its history, TAFE has regularly been criticised for its high student attrition rates. Research by Gilbert (1973), Mitchell (1974), Brougham (1978), Jacobs (1981), Naylor and Naylor (1982), MacDonald (1984), Streckfuss and Waters (1990), Duball and Baker (1990), and Abbott-Chapman, Hughes and Wyld (1992) has found extremely high attrition rates across most of TAFE’s mainstream courses in Australia. The results of these studies led MacDonald (1984) to conclude that there was a critical need for the development of retention strategies for students participating in TAFE courses. Although similar recommendations have continued to be made, there is little indication that such strategies have been considered for development and implementation by TAFE. It has been suggested that the social, environmental and financial situations of the student are viewed as separate to TAFE’s charter, and in any case, not within their control or influence.

MacDonald (1984) reported that over the period of an average three year part-time business course, TAFE was estimated to lose between 32% and 47% of enrollees before the end of the first year and up to 87% of the original enrolments by the end of the final year of a three year part-time course. When one considers that over 400,000 students attend the TAFE NSW network of institutions annually (Scott, 1990), the implications of student attrition rates in terms of financial and human resource costs, not to mention the impact of social and personal outcomes, are staggering.

Although TAFE NSW does not report course attrition rates, they have produced statistics during the last decade that identify student module (i.e. individual subjects of a program of study) completion rates. The funding for each student who attends a TAFE NSW course is generally on the basis of module completions occurring within a semester, and at the time of writing, a partially completed module by a student attracts to TAFE the complete module funding. To further clarify, for funding purposes and irrespective of whether a student has passed or failed in the module, the attendance is
registered for module funding. A “withdrawn” classification is applied to students who have enrolled and attended more than 25% of scheduled sessions for the module before leaving. The “withdrawn” classification also attracts funding to TAFE at the same rate as that for module completion. Should the student leave their program of study prior to 25% of the scheduled classes being attended, the attendance will be classified as “discontinued” and also attracts full funding to TAFE.

It must be clarified from the outset that module completion figures should not be construed as representative of student course completion rates. The fact that the organisation is funded on the basis of module completion rates should provide some insight in regard to the logic behind the reporting strategy. The official module completion rates reported by TAFE NSW for general consumption are defined as the percentage of pass module rates over the number of pass, fail, withdrawn and discontinued student results (Statistics Newsletter: Enrolment Summary 1999-2001, 2002). TAFE notifies that the calculation is based on accessible modules only and does not include multi-year enrolments. However, what is also not included in the calculation is the “Non-Start” student classification (i.e. where the student has attended and officially registered their enrolment in the study program but does not attend at least one class of the module). Yet attrition researchers have identified the student who officially registers their enrolment in a program of study and fails to attend classes is necessarily part of the dropout classification (e.g. Waggener & Smith, 1993; Levin & Wyckoff, 1990). Although there are no official Non-Start figures released by TAFE NSW, there exists only anecdotal evidence to suggest that, depending on the field of study, Non-Start figures can be substantial. Also missing from the explanation of module rate outcomes is the fact that the duration of a module at TAFE is typically one semester. The module completion rates are reported by TAFE as having occurred over the duration of one year rather than on a semester by semester basis. There are several implications regarding this method of reporting, the most obvious is that the module completions rates are substantially higher in first semester than the second semester due to non-returning

\[1\] Funding occurs in this situation regardless of whether the student has submitted an official withdrawal application.
students for the second semester of their study program. Students typically enrol for the entire year, and a non-returning student for second semester, although enrolled for numerous modules, is considered a Non-Start and excluded from the module rate completion reports for that year. Further, because TAFE uses module completion rates to report student outcomes, and with the bolstering of rates that new enrolments bring to the statistics from annual and mid-year intakes, poor course completion rates might be considered somewhat masked by the reporting method.

Despite the approach of TAFE to the method for reporting outcomes, the following figures obtained from their statistics report for the years 1999-2001 (Statistics Newsletter: Enrolment Summary 1999-2001, 2002) still indicate that serious attrition problems are being experienced. In 2001, the total student enrolments in TAFE NSW courses was 504,496. The Primary Industries and Natural Resources division registered both the highest module completion rate (90.2%) and one of the lowest module completion rates (67.1%) across NSW institutes. The lowest module completion rate (64.9%) was located to the Access division of courses. On a state-wide basis, the faculty which is the major focus of the current study recorded module completion rates ranging from 74.7% to 82.8% across eleven institutes, producing a mean module completion rate of 78.4% for the State. TAFE NSW expects that in the near future, full module funding will be on the basis of “pass” results only, and only part-funding will be allocated for other student outcomes. This situation therefore has significant implications for the future regarding TAFE’s commitment to research and subsequent implementation of programs to improve student retention rates.

**Higher Education Attrition and the Part-Time Mature-Age Student**

A major component of this study investigates attrition in higher education institutions. More specifically, it focuses on the mature-age student who is typically working full-time and studying part-time. Many attrition researchers now refer to students who participate in part-time studies, and who are also generally employed in a
full- or part-time capacity, as non-traditional students (Summers, 2000; Rovai, 2003; Kerka, 1989; Pacheco, 1994; Grosset, 1991).

MacDonald (1984) reported that numerous attrition studies researchers had made serious and incorrect assertions regarding the similarities in attrition characteristics of part- and full-time students in higher education. Despite MacDonald’s (1984) concerns, it appears that these problems have continued, where for example, Gerardi (1990) proposed that although the participation characteristics of full-time students are somewhat different to that of part-time students, the attrition rates are similar and that the reasons for which both groups of students withdraw from their programs of study are alike. In support of MacDonald’s reservations regarding these contentions, several other researchers (e.g. Feldman, 1993; Stolar, 1991; Brooks, 1991) have found significantly higher attrition rates for the non-traditional student, outcomes which suggest that retention programs should be thought of differently for mature-age students (Kerka, 1989). In a study of first time students ($N = 1,623$), Feldman (1993) established that part-time students were 2.23 times more likely to dropout than full-time students. Researchers (e.g. Lanni, 1997; Swager, Sarah, Campbell & Orlowski, 1995) have also found that non-traditional students who work full-time are more likely to withdraw than students who are working and studying part-time.

Streckfuss and Waters (1990) report that the mature-age student entering higher education has typically not studied in the previous ten years before undertaking the course. Schlossberg, Lynch, and Chickering (1989) suggest that this situation (i.e. a long period of absence from study) is precisely why higher education should be thought of differently for mature-age students: they have diverse characteristics, a vast range of life circumstances, have more and varied past experiences, are more concerned with practical application, and have greater self-determination and acceptance of responsibility than traditional students. All of which, according to Kerka (1989), results in the student role becoming a secondary activity for mature-age part-time students which inevitably contributes to higher rates of attrition.
Stolar (1991), for example, conducted a study of a non-traditional age university student population (i.e. students aged 25 to 55 years) over one semester, examining such factors as student demographic characteristics, academic goals, attendance patterns, and their opinions of the institution. Following the research period (i.e. one semester), over 33% of students had withdrawn from their course of study. The outcomes were significantly higher than the withdrawal rates expected of traditional-age college and university student populations (Stolar, 1991). In addition, a study of community college students by Brooks (1991) found that the lowest persistence rates between Term I and Term II were associated with students who had enrolled part-time in non-degree programs, were working full-time, and were over the age of 40. Conversely, a study by Simmons et al. (1995) of non-traditional student attrition indicates that workers with relatively low skills and fewer years of previous education were most likely to persist. Bers and Smith (1991) suggested that employment status was also a significant predictor of persistence, in that those who are gainfully employed throughout their program of study are most likely to graduate. Duball and Baker (1990) found that neither employment status nor prior qualifications of the student were related to non-persistence. According to a number of researchers, the field of study itself can become a predictive variable of some consequence (Richardson & Attinasi, 1982). Some of the highest combined rates of persistence and graduation are in the fields of engineering, architecture, biological science, business, communication, and health science (Richardson & Attinasi, 1982).

A large number of attrition studies have attempted to generalise research outcomes to all areas of higher education. More appropriately, a growing number of researchers have realised the limitations of broad-brush attrition studies and have focused on specific issues and circumstances within higher education. In regard to the non-traditional student, numerous researchers have suggested that it should be clear to educational observers that mature-age adults in higher education are no longer an emerging trend but in fact a reality (Kerka 1989), and that the "concept of persistence or retention must be thought of differently for adults" (Pappas & Loring, 1985, p. 139). Therefore, research results suggest that college and university administrators should now
adapt their thinking from one that considers only the traditional-age student population, to a broader view that provides for the mature-age student also (Kerka, 1989; Steltenpohl & Shipton, 1986; Swift, 1987).

**Implications for the Present Study: Historical Overview of Attrition Research**

The literature indicates that student attrition rates are extremely high throughout tertiary campuses, with much of this evidence being generated from attrition research in the western world, particularly the United States. The Australian circumstance, at best, indicates a similar serious rate of student attrition. The suggestion by researchers that mature-age part-time students are non-traditional may be true from a perspective that considers only the student who enters college or university directly from school. However, for TAFE NSW, mature-age part-time students form the far greater proportion of the student population and the most significant aspect of their charter. There is substantial evidence to support the contention that persistence outcomes for the non-traditional student are substantially higher than those of the traditional-age student population (Somers, 1995; Feldman, 1993; Stolar, 1991; Brooks, 1991; MacDonald, 1984).

It is clear from the research that higher education administrators need to adopt a broader view that considers more than the traditional-age student (Schlossberg, Lynch & Chickering, 1989) in order to obviate the substantial costs and losses in student resources. However, in the pursuit of advancing our understanding of student attrition, caution must be exercised when contrasting U.S. and Australian attrition research. For example, many researchers suggest that a large proportion of non-traditional students at two year U.S. colleges who are included in attrition statistics often have educational goals other than graduation (e.g. typically, it is suggested that the student intends to accumulate enough credit hours for transfer to university).

In New South Wales, credit transfers of TAFE NSW qualifications to the university environment generally requires completion of the TAFE course program in
order to accumulate any advanced standing or credit for previous studies. Thus, it is contended that attrition rates in TAFE NSW are not likely to include a substantial number of students who left because they had already achieved their educational goal (Streckfuss & Waters, 1990), or more particularly, had accumulated enough credits for transfer to university. The present investigation has therefore highlighted two critical aspects that differentiate the current study from what pertains to most attrition research; the structural differences of the New South Wales higher education system to that of the U.S., and the circumstances and persistence behaviour patterns of traditional versus non-traditional student populations.

**Univariate and Single String Variable Approaches to the Study of Non-Persistence in Higher Education**

Much of the early research into attrition rates in education was underpinned by the notion that the reason for a student dropping out lay in some quality or combination of qualities in the student. As a consequence, much of past attrition research has been concentrated on individual or single sets of variables and their relation to non-persistence. The following student issues are typical of univariate studies in attrition: Employment demands; family responsibilities; issues relating to gender, age, marital status and ethnicity; financial constraints; religious preferences; social behaviour; academic background; personality variables; and health issues (Boutsen & Colbry, 1991; Braxton, Brier & Hossler, 1988; Ethington, 1990; Fox, 1986; Johnson & Miller, 1993; Lang, Dunham & Alpert, 1988; Mallette & Cabrera, 1991; Metzner & Bean, 1987; Moline, 1987; Nora, 1987; MacDonald, 1984).

Institutional-related factors have also been the focus of attrition research, including issues such as faculty-student interactions, facilities and services, administration and instructional processes, curriculum, changing student characteristics, and admissions policy. In what follows is an overview of the research regarding those factors that researchers have considered as having a major implication in student attrition

Relation of Student Demographic and Background Characteristics to Non-Persistence

Age and gender as the basis of non-persistence. Many attrition studies have identified the age of the student as the variable believed most likely to impact either on its own, or in combination with other variables, on the withdrawal decision of the student (Hunter & Sheldon, 1980; Lanni, 1997). Numerous studies have identified that older students are more likely to dropout than traditional-age students (Windham, 1995, Stolar, 1991; Brooks, 1991). Yet conversely, other researchers have not only found no significant relation between age and attrition (Summers, 2000; Mohammadi, 1994; Baker, 1986; Pascarella, 1985; Duball & Baker, 1990), but that depending on the type of course and method of delivery, students under 25 years have proven to have higher attrition rates (Bartels, 1982). Cleveland-Innes (1994, p. 443) suggests that chronological age may in fact act as “a surrogate variable for what is really variation in life circumstances”. Gender has also often been identified as a strong predictor of attrition when considered singularly (Wolf-Lockett, 1998; Fischbach, 1990; Mercer, 1993), but has been found to lose its cogency when other variables are included in the analysis (Summers, 2000; Mohammadi, 1994). Hence the effects of age and gender seem to be more complicated than first found when multivariate analysis rather than univariate analysis is undertaken.

Race, ethnicity and parental socio-economic status. Studies in attrition that focus on the effects of race are typically a U.S. based examination of the differences between white and Black students. However, although race (Zhao, 1999) and ethnicity (Richardson & Attinasi, 1982) appear to be strong predictors on their own, when other variables are included in the prediction model the individual effects of race and ethnicity are largely removed (Wall, Lessie & Brown, 1996). Numerous researchers have focused their efforts on the effects of learned behaviour and its impact on attrition (Howard, 1989). Various studies have suggested that students from higher socio-economic
backgrounds who generally complete higher levels of school education and/or had parents who had attained post-secondary qualifications tended to persist in their courses more so than those students who achieved only a low level of school education and/or had parents with no post-secondary qualifications (Bean & Metzner, 1985; Gerardi, 1996). However, other researchers have found these variables to be non-significant (e.g. Pascarella, 1985; Ethington, 1990). For example, Pascarella (1985) found no significant relationship between socioeconomic status and persistence outcomes for black and white student populations ($N = 10,326$) generally, but identified a significant and positive relationship between persistence and white female students. Duball and Baker (1990) demonstrated that non-significant outcomes resulted between persistence and socioeconomic status when student-institution interactions were introduced into the analyses. Thus, as with age and gender, background variables such as race, ethnicity, and parents’ educational achievements appear to have a direct impact when considered in isolation, but typically prove non-significant when part of a multivariate design.

**Academic influences on attrition.** Academic influences leading to non-persistence, include insufficient hours dedicated to study, poor study skills, high levels of absenteeism, inappropriate or poorly defined academic goals, and low academic competencies (de Rome & Lewin, 1984; Getzlaft, Sedlacek, Kearney & Blackwell, 1984; Grosset, 1991; Johnes, 1990; Van Overwalle, 1989). Students who have been identified as generally lacking a preparedness for college study have also been shown to have a propensity to non-persistence (Boughan, 1998; Lanni, 1997; Fidler & Hunter, 1989), as have students who enter college with low high school grades (Hagedorn, Maxwell & Hampton, 2002; Fidler & Hunter, 1989). Hence a number of facets of academic influences have been identified as influencing attrition rates.

**Student educational objectives and expectations.** The literature provides many examples of research outcomes to suggest that the desire to become a student and academic commitment (Boughan, 1998; Clagett, 1998), career aspirations, including the academic goals and future plans of the student (Ethington, 1990; Nelson, Scott & Bryan, 1984; Daniels, 1990; Bers & Smith, 1991; Waggener & Smith, 1993) are potential
predictors of persistence. In their research, Okun, Weir, Richards and Benin (1990) identified that the student’s goal of “commitment to the intention to stay” was the strongest predictor of continuation status. However, other studies have revealed that measures of career goals and attitude to commitment do not generally contribute to the explanation of retention status (Pascarella, 1985). Metzner and Bean (1987) suggest that the initial educational goals of a student may contain influences that motivate them to persist in course attendance, the major goal identified by students relates simply to the gaining of an education. Course expectations of the student are also considered to be an important factor, with high attrition rates said to result from the content of courses being substantially different to the expectations of the student (Metzner & Bean, 1987). Yet, other research has established that course expectations did not contribute strongly to students’ decisions to withdraw (Streckfuss & Waters, 1990). Hence the outcomes achieved by variables measuring the educational objectives and expectations of students and their relations to persistence remain somewhat conflicting.

**Familial support.** Rogers and Pratt (1989) compared the parental support reported by university students who planned to transfer and those who planned to graduate. Their research yielded only one consistent result - that freshmen who plan to graduate from the institution feel that they receive more support from parents than those who plan to transfer. Other studies have identified that the level of encouragement from the student’s family is one of the most cogent predictors of persistence/withdrawal (Okun, 1996; Allen, 1994; Stage & Williams-Rushin, 1993; Schommer, 1993). However, Crawley and Black (1992) found that family encouragement only served as a predictor of a student’s intention to enrol in a study program following the initial orientation, and had no impact on the student’s decision to persist in the course of study (Waggener & Smith, 1993). Hence the research pertaining to the impact of familial support on attrition has produced paradoxical results.

**Personality type as a determinant of non-persistence.** A number of theorists have attempted to link a specific personality profile, or a lack of essential personality attributes necessary for success in higher education studies (Talbot, 1990; Munro, 1981;
Pascarella, Smart & Ethington, 1986; Caracelli, 1986). Others suggest an opposing view, that is, that there are no mysterious, personality-based influences involved in student attrition, but that individuals may simply enrol (or re-enrol) in a course of study as the result of a personal growth experience occurring at that time (Gilbert & MacLean, 1992). Again, reports of the influence of personality on the non-persistence decisions taken by students are inconsistent.

**Summary: The Influence of Student Demographic and Background Characteristics on Attrition Patterns**

It is clear from an examination of past attrition research that almost all background variables (e.g. age, gender, race, ethnicity, socio-economic status etc.) have been shown to have conflicting outcomes regarding their contribution to the identification of variables that influence a student’s decision to withdraw from their studies. Whether the study has a univariate or multivariate analysis design of direct or indirect effects of background variables, for every study that confirms a significant relation to attrition, there is surely another study that will refute such findings. As will be demonstrated in the following section, this situation is made even more complex by the compounding effects of the higher education environment.

**Institutional Influences on Persistence**

There is no doubt that research in attrition has had many issues with which to contend. Over the last century, there have been a number of events that have changed the shape and focus in attrition studies, none more prevalent than the open-entry policies that were adopted by higher education institutions during the late 1970’s. Since its inception, the open-entry policy has not only become common practice for student admissions throughout the western world countries, but data has been produced to show that the majority of students entering higher education in Australia, the United Kingdom and the U.S. are now mature-age students (Richardson & King, 1998). Policies such as this have led to increasing demands for institutions to be more accountable for their retention
outcomes for mature-age students (Cohen & Brawer, 1996; Kozeracki, 1998). The following is an overview of the major issues relevant to research regarding institutions of higher education and attrition.

**Relation of the quality of institutional facilities and services to attrition.** Various researchers have identified that student perceptions of the inadequacies of an institution’s provision of facilities and services to students (e.g. job placement services, financial aid, student leisure activities, and tutoring services) may influence student decisions to withdraw (Summers, 2003; Murdock, 1990; Stolar, 1991). Experiences with college administrative and instructional processes have been linked to increased student attrition (Heverly, 1999). Other studies have found that those who utilise student counselling services (Willett, 2001), and tutoring (Fink & Carrasquillo, 1994; Hilts, 1991; Maxwell, 1990), college athletics and social clubs (Barr & Rasor, 1999) were more likely to persist to course completion than those students who did not make use of such facilities and services. Various researchers (e.g. Maxwell, 1990; Harris, 1990) however, report that although the literature suggests that student support programs such as tutoring improve student grades and retention, evidence to support these contentions is weak and inconsistent. Financial aid in the form of student scholarships has been identified as one of the most important financial aid “type” in explaining student retention (Murdock, 1990; Gaither, 1992). Although research has shown that withdrawn students identify financial hardship as one of the most frequently cited reasons for not returning to studies (Stolar, 1991), other research has shown that financial aid was not a convincing predictor of persistence (Somers, 1995). A meta-analysis of over 500 studies by Murdock (1990) found that financial aid to lower socio-economic students promotes persistence to a level almost equal to that of the middle and upper-income students. Students from families in the higher income brackets have been found to graduate to a greater extent than students from lower income families, suggesting that the financial situation of the student’s family was a more accurate predictor of persistence than all forms of financial aid (Wall, Lessie & Brown, 1996). Hence support for student services and facilities and student financial circumstances as having a strong positive influence on student persistence patterns cannot be confirmed.
**College native versus transferring students.** Researchers have suggested that one variable which best identifies likely persisters is whether the student is a native college junior (as opposed to a transfer student), who is more likely to achieve higher college GPA's and retention rates than transfer students (Anderson & Polillo, 1987). Other research however, suggests persistence and graduation rates of full-time transfer students can be as much as double that of the persistence rates of first-time, entering students (Weeks & Wurster, 1989). Thus the long established practices of institutions developing retention programs with a view to keep and maintain relations with college natives, or to employ marketing strategies designed to entice student transfers, are likely to have been based on research vulnerable to inconsistent outcomes.

**Open and provisional admissions.** It was mentioned previously that the 1970's saw the introduction of what was at the time a controversial open-admissions policy at many institutions. The open-admissions policy permitted the enrolment of large numbers of students who many believed were generally in need of basic skills instruction. White and Mosely (1995) report that first year attrition rates vary considerably between institutions based on their admissions policies. Highly competitive institutions (e.g. Stanford and Harvard universities) report attrition rates of between 1% and 2%; institutions which are competitive in admissions policies report between 8% and 12% attrition; and open-admissions colleges report as much as 60% in first year attrition (White & Mosely, 1995). However, studies comparing persistence outcomes of open-admissions students with regular entry students have found little difference in persistence outcomes between the groups (Gerardi, 1990). Tambe (1984) claims that although accurate predictions cannot be made for individual open-admissions students at the time of matriculation, it is possible to predict that around 80% of these students will fall in the "persist" category after two semesters, and about 51% after four semesters. A later study by Ronco (1995), demonstrated that students admitted to college on a provisional basis were at the highest risk of dropping out, and variables that measured educational background and academic success were strong predictors of non-persistence. However, several studies that have investigated the attrition of students on the basis of their level of academic ability established before entering university found that increasing entry level
academic requirements to the university were not likely to increase retention outcomes (Johnes, 1990; Gaither, 1992). Hence conflicting outcomes regarding traditional and open-entry student persistence rates are evidenced in this area of attrition research.

**Developmental support.** Students taking part in developmental support classes (either as an institutional requirement of course participation or by voluntary attendance) have long been thought of as “high risk” for dropping out. However, several studies have established that there is little difference in persistence outcomes between the academic success of students who completed developmental education courses compared to those students who do not undertake such courses, but whose placement test scores indicated that they should (Morris, 1994; Rudmann, 1992; Fox, 1985). Interestingly, what has been found to be a stronger predictor of persistence is the grade achieved by the student undertaking a developmental support class, where those who received unsatisfactory grades in their developmental classes are more likely to withdraw from college than those who received satisfactory grades (Suter, 1983). Thus the influence and relation of developmental support for students to persistence patterns cannot be confirmed.

**Non-persistence as a natural or planned course of action.** A number of researchers have suggested that student attrition may be positive in some instances (Pitkethly & Prosser, 2001; Cullen, 1994). Attrition may result when students have gained what they wanted to achieve from a particular course of study (Kambouri & Francis, 1994; Perin & Greenberg, 1994), irrespective of graduation. Alternatively, students may dropout as a result of a “lack of fit” (Tinto, 1982; 1990; 1995) or mismatch (Li & Killian, 1999) between the student and the institution. In this case, it is not necessarily assumed that either party is at fault. Proponents of this theory would suggest that if the lack of fit cannot be resolved, then it would be in everyone’s interest if the student were to withdraw (MacDonald, 1984). The notion of a “lack of fit”, or what is more often referred to now as “person-environment” fit, forms the basis for the model developed by attrition theorist Vincent Tinto (1975). This particular model has become a focal aspect of attrition research (Summers, 2003) and is raised again for further discussion later in the chapter.
Summary: Institutional Influences on Persistence

Significant events in higher education have led to increasing demands for institutions to be more accountable for their retention outcomes (Cohen & Brawer, 1996; Kozercaki, 1998), none more prevalent then the rise in the number of non-traditional students attending part-time studies. Recent research suggests that the majority of students entering higher education throughout the major western countries of the world are now mature-age students (Richardson & King, 1998). Increases in the quality and provision of facilities and services by institutions to meet the needs of traditional and non-traditional students have typically produced paradoxical outcomes in attrition research, which provide little direction for institutions as they strive to improve retention outcomes. This circumstance has led researchers to investigate other possibilities to explain persistence patterns, such as the impact of crisis points occurring throughout the student career.

Established Benchmarks and Critical Points in Attrition Research

Researchers have also examined variations of pre- and post-enrolment data in an attempt to establish student persistence patterns. While most studies focus on pre-enrolment and/or post-enrolment variables, other authors have designed more complex or precise models that either extend beyond the two major points of time, or highlight more specific points in the student’s career. For example, Levin and Wyckoff (1990) suggested that the variables which are predictive of student persistence are entirely dependent on the student’s point of progress through a course of study, and the authors subsequently developed three models to cater for a two year study program: pre-enrolment time, first year, and second year. Waggener and Smith (1993) identified two specific points which they referred to as “benchmarks”, with the first being the student’s decision to enrol in the first semester following the initial enrolment orientation session, and the second critical point being the decision to re-enrol in the second semester after freshman orientation. A third critical point identified by Lenning and Mohnkern (1986), further supports the notion that measures of attrition cannot be isolated to one specific stage of
the student career. They found that although their focus was of the freshman-year, and that the intervention strategies employed actually decreased the first-year non-persistence rate by 10%, attrition at the beginning of the second year increased. In regard to four-year institutions, Ronco (1994) proposed that following the initial enrolment period, students' greatest risk of leaving was after the second semester enrolment period, with the hazard again peaking after the fourth term, and then levelling off after the sixth semester. The research in prediction studies show therefore, that at least three critical benchmark points for data collection exist. They include pre-enrolment, enrolment and post-enrolment. Because of the ongoing recognition in the literature of the predictive power of the student's freshman-year grade point average and its relation to a benchmark crisis point in the student career, the arguments for and against the use of the measure will also be addressed in this section.

Pre-enrolment variables. Research that investigates the cogency of pre-enrolment variables to predict attrition include in their study such variables as age, gender, race, high school rank, and stated educational goals (Fischbach, 1990). From these variables, only student age (e.g. Lanni, 1997; Windham, 1995) and high school rank (White & Mosely, 1995; Haviland, Shaw & Haviland, 1984; de Rome & Lewin, 1984; Moline, 1987; Nelson et al., 1984) were significant predictors of student persistence. In contrast, a study by Kanarek (1989) found that among pre-college variables, the Scholastic Aptitude Test (SAT) and high school GPA and rank predicted graduation poorly, and the inclusion of achievement test information did little to strengthen a prediction model (Tambe, 1984; Kanarek, 1989; Stoechker, Pascarella & Wolfe, 1988). Other attrition investigators have found that gender (Levin & Wyckoff, 1990; Sax, 1992), and scholastic ability and the stated educational goal of the pre-enrolled student (Garrison, 1985; Daniels, 1990; Waggener & Smith, 1993) were significant predictors of persistence.

Yost (1984) developed a mathematical model designed to identify admitted college applicants who, although they had paid their tuition deposit, would fail to participate in the college program in which they were enrolled. The variables included in
the resulting discriminant model were: verbal and mathematics Scholastic Aptitude Test scores, high school rank, high school grade point average, sex, amount of financial aid provided, and place of residence. The model was tested for its predictive power in the following year’s freshman intake, where the accuracy of prediction not only validated the previous year’s findings (75% accuracy) but also achieved 68% accuracy with the 1984-1985 cohorts (Yost, 1984). Thus research that has investigated pre-enrolment variables as predictive variables of student attrition has produced conflicting results.

**Enrolment.** Researchers of the student enrolment process suggest that although the student’s initial set of prompters to begin a course (i.e. the initial decision to enrol) might serve as useful promotional information for the institution, these prompters to enrol have not proven to be useful predictors of persistence. For example, Waggener and Smith (1993) found that family encouragement, the need for writing skills, belief in self, the goal to obtain a degree, amount of commitment, and living arrangements were important variables in a student’s decision to enrol but were not related to persistence outcomes. In regard to late registration of enrolment, numerous authors (e.g. Angelo, 1990; Diekhoff, 1992) have investigated the potential of course registration behaviour to be use as an indicator of persistence. From a total of 39,000 class registrations at a U.S. community college, Angelo (1990) found that late registrants were more likely to complete courses than those who registered in the allocated times and according to the usual process. Further, although Angelo (1990) found that there was no appreciable difference in the two groups’ academic performance, Stein (1984) reported a significantly higher percentage of late registrants (28%) achieved an “A” grade compared to only 17.1% of the whole student body for the 1983 fall quarter classes. In contrast, Street, Smith and Olivarez (2001) found that 80% of those students who registered during the regular period for enrolment continued to the following semester, compared to only 35% of those who registered late. Hence, results that permeate the literature regarding student reasons and influences for undertaking a course of study and the behaviour patterns they exhibit in regard to registration and enrolment processes appear inconsistent.
Post-enrolment data. Various research has suggested that the first point at which institutional administrators can make reasonably accurate predictions regarding withdrawals is at the end of the two or three week period (depending on the institution) when the deadline for students to either add or drop classes occurs (Summers, 2000; Fischbach, 1990; Baker, 1986). Summers (2000) found that the logistic regression model applied in his study had the “number of classes dropped” as the most statistically significant variable regarding non-persistence. Fischbach (1990) suggests the most useful form of post-enrolment data are to be found in student high school transcripts. Further, the author also found that the college grade-point average and class withdrawal rates were the only significant post-enrolment predictor variables of student persistence (Fischbach, 1990). Levin and Wyckoff (1990) looked beyond the first year data, and found that far more reliable predictions of persistence could be achieved through ongoing measurements of the grades achieved by the student throughout both the freshman and sophomore years. Waggener and Smith (1993) found grades achieved during the first semester had little to do with a student’s decision to return to college at the second semester point, but more involved a separate and unconnected set of external factors such as minimal or no employment in the work environment. One of the most interesting discoveries proposed in the literature is that what has been traditionally regarded as an extremely high dropout rate following the second semester may in fact be a mass migration of students transferring between institutions (Ronco, 1995). Thus the myriad of potential post-enrolment influences on persistence patterns have typically resulted in conflicting outcomes in the literature.

Established Grade-Point Average measure. Many studies in attrition research have reported one major outcome—that the variable which shows the largest total effect on persistence is college grade-point average (Summers, 2000; Ronco, 1995; Feldman, 1993; Moline, 1987; Nelson, et al., 1984; Young, 1982; Richardson & Attinasi, 1982; Rodney, 1981). First semester GPA has been identified as a cogent predictor of persistence for students undertaking developmental programs (White & Mosely, 1995; Suter, 1983). Young (1982) reported that the GPA measure not only separated graduates from non-graduates, but also provided a good indicator of the predicted time to graduate
and the number of semesters likely to be attended by non-graduates. Substantial research, however, has rejected the assertion that the student’s first year GPA alone is the best predictor of persistence (Somers, 1995; Sax, 1992; Rogers & Pratt, 1989). Rogers and Pratt (1989) for example, found that the student’s intention to transfer or graduate and its interaction with freshman-year grade-point average is a more powerful predictor of retention status. More specifically, the authors were able to show that those students who planned to transfer but withdrew after their first year had the highest average GPA, and those who planned to graduate but withdrew had the average lowest GPA (Rogers & Pratt, 1989). In developing a set of predictors for use by those concerned with admissions policy, Kanarek (1989) found that the best predictors of 5-year graduation were persistence to the second year and the students’ first year cumulative GPA. Hence, in attrition research where both univariate and multivariate studies of student GPA are applied, outcomes regarding the cogency of the GPA variable to predict non-persistence are conflicting.

**Summary: Established Benchmarks and Critical Points in Attrition Research**

Examination of the research regarding pre- and post-enrolment variables and their relation to attrition has again produced inconsistent results. In regard to pre-enrolment variables as predictors of non-persistence, student reasons and influences for undertaking a course of study, analysis of student high school transcripts, and the behaviour patterns exhibited by students in regard to registration and enrolment processes, have typically resulted in conflicting reports in the literature. Research regarding attrition and the influence of post-enrolment variables such as late registration in study programs, the number of classes dropped by students, external pressures such as employment, the grades achieved throughout the freshmen and sophomore years and various direct and interaction effects of GPA, have generally produced diverse differences in findings, and their influence on attrition therefore cannot be confirmed.
Implications for the Present Study: Univariate and Single String Variable Approaches to the Study of Non-Persistence in Higher Education

As the above review of the research regarding student demographic and background variables (e.g. age, gender, race, ethnicity, academic background, family influences etc.), institutional variables (e.g. institution’s facilities and services provisions, administration and educational delivery, open-admissions policy, student-institution fit etc.), and attrition crisis points (e.g. pre-enrolment, enrolment and post-enrolment) would suggest that for every study which identifies a particular variable or string of variables as cogent predictors of persistence, there are as many other studies that can be found to refute those assertions. Inadequacies of much of the past attrition research has been attributed to ambiguous definitions of terms (Summers, 2000; Preston, 1993; McPherson & Paterson, 1990; Tinto, 1987), as well as failing to conceptualise the dropout/stopout (Bonham & Luckie, 1993; Avakian et al., 1984; Grosset, 1993) and transfer (Allen, 1994; 1984) process.

Various researchers have noted serious reservations of the statistical methods used and causal inferences made in attrition studies (McPherson & Paterson, 1990). Even earlier researchers identified that the methodological rigor of attrition studies had largely been overlooked, weakening the validity of research and leading to confusing results (Liu, 1982). Aitken (1982) suggested that by focusing on single variable causes of non-persistence, researchers had and would continue to fail to recognise that a multivariate model is required to adequately describe the structural relationships that determine the retention outcome. Researchers have reported that for those studies that did take a multivariate approach to analysis of attrition data, there had been little progress made in tying the variables together conceptually (Stage, 1988a; 1989a), and for those studies that did form variable domains, the statistical models were not typically adequate for the task of describing relationships within the model (McPherson & Paterson, 1990).

Recent research suggests that the majority of students entering higher education are now mature-age students (Richardson & King, 1998), a situation that has led to increasing demands on institutions of higher education to be more accountable for their
retention outcomes (Cohen & Brawer, 1996). The growth of the non-traditional student population has introduced an even more diverse set of problems in the study of student attrition. Research regarding aspects such as the desire to become a student and academic commitment (Boughan, 1998; Clagett, 1998), and the impact of family (Lanni, 1997; Swager, Sarah, Campbell & Orlowski, 1995) and work (Okun, 1996; Waggener & Smith, 1993) demands on mature-age persistence patterns, has again produced paradoxical findings.

Thus, researchers seeking the means to improve retention in higher education institutions should not only be cautious regarding their interpretation of the outcomes of past attrition research, but in considering their projects, be mindful that such conflicting findings across diverse areas of attrition studies are suggestive of a serious lack in the application of sound theoretical models, the use of poorly structured or ill-defined research methods and imprecise measurement instruments, and an absence of empirically valid analysis procedures.

Further, because attrition studies are mostly based in the U.S, and the diversity in research population characteristics examined (e.g. two year or four year colleges and universities, which are small, medium or large, and investigated singularly or as part of multi-institutional model that is comprised of traditional and/or non-traditional students), what little remains of well-designed studies in persistence are difficult to generalise from one institution to another, let alone to the educational systems of other western countries. For example, some of the stronger studies (e.g. Summers, 2000; Ronco, 1995; Feldman, 1993) have identified that various configurations of student GPA measures provide predictive value regarding student persistence behaviour. TAFE NSW utilises an assessment system that is largely designed to report competency-based outcomes, that is, where a pass or fail result may be all that is reported for the greater proportion of course modules. Although a system of indexed scores could be generated (e.g. where higher competency level subjects generate more credit points), the task is beyond the parameters of this thesis and therefore analyses of GPA type measures will not be included in the current study.
The implications from all that discussed above serve also as the most telling feature of the studies that have examined the myriad of attrition issues; that the greater majority of research have utilised a purely empirical approach to a specific attrition issue without reference to or development from any established theoretical model. In regard to the Australian setting, McInnes, Hartley, Polesel and Teese (2000) claim that the literature indicates there is inadequate monitoring by higher education institutions of reasons for student withdrawal. In general reference to approaches to research, Marsh (1993) and Marsh, Craven and Debus (1998) have argued that theory, measurement, research, and practice are inexorably intertwined so that the neglect of one will undermine the others. The following section demonstrates that this crucial aspect of research has been appropriately considered for the current study.

**Major Theories of Attrition**

Unfortunately, the most consistent aspect of attrition studies is the absence of a strong theoretical framework to underpin research. Yet a preliminary step in planning retention research is the development and application of a theoretical framework, which allows for the carefully planned, valid and reliable collection of data and the application of appropriate analysis procedures (Hisada, 1988). Bean (1982) provides a concise statement that identifies the usefulness and import of a theoretical framework for attrition research:

A theory of student attrition describes the attrition process – it explains why students drop out of school. In another way, a theory of student attrition can be used to predict which students are most likely to drop out of school. Theory guides research. It tells us what variables or constructs we should focus on in study and how those variables are related to what we are trying to explain. It also helps us by eliminating variables that cannot be deduced from the theory (p. 17).
Tinto (1987) purports that many of the attrition models appearing in the literature have drawn from psychological, sociological, economic and organisational theory, and in most circumstances, continue to remain independent of each other without reference to the possible combined or interactive effect of student, institutional and other factors on persistence. For example, in Figure 2.2 Johnson (1994) has attempted to graphically represent the student withdrawal process, conceptualised as the consequence of either an institutional or a personal decision.

Although Johnson’s model comprises many of the variables identified as having an influence on student persistence, it does not appear to account for the causal or interactive aspects of these variables. For example, the model suggests that Academic Student Characteristics (e.g. student attendance, study skills) and Personal Student Characteristics (e.g. health, finances) impact on Institutional Factors (e.g. academic support), but only Personal Student Characteristics and Institutional Factors (and not Academic Student Characteristics) influence Campus Integration (e.g. establishing friendships, membership to clubs). There are many causal and interaction paths missing from the model that are logical and necessary inclusions (e.g. a direct path potential for the health variable from Personal Student Characteristics to the Student Psychological State (e.g. stress, fatigue), and from health to Undergraduate Student Withdrawal).

Johnson’s (1994) model appears to be a collection of the many commonly researched variables which have been linked to student non-persistence, drawn together into various domains. Missing from the model are the theoretical postulates necessary to achieve an effective design in the causal ordering and interaction effects of the variables that attempt to define attrition.
Figure 2.2 Johnson’s (1994) model of undergraduate student attrition
In contrast to the Johnson (1994) model, the following is an overview of the two most popular and validated theoretical models used in attrition research, namely the Student Integration Model (Tinto, 1975) and the Student Retention/Attrition Model (Bean, 1980).

**Student Integration Model**

It was not until the last two decades that attrition rates were seen by educational researchers as something other than a measure of student progress. There had been acknowledgement that while particular student characteristics can be related to student attrition, it is also important to investigate the interaction between the student and the institution (Tinto, 1982). Research to the late 1970's which investigated person-environment fit had been challenged by Hoyt (1981) for its failure to identify the significant institutional variables and to address the problem of matching student and college characteristics. Hoyt purported that such research was typically unproductive because studies tended to use the most easily assessed variables (e.g. size, affluence, type of control, location, complexity, selectivity) and avoided the difficult to assess and more valuable variables, such as faculty commitment to teaching, concern for personal values, vocational emphasis, and academic standards (Hoyt, 1981).

The thrust of this observation led to the development of the most widely used model of student attrition employed by researchers during the last two decades. Referred to as the Student Integration Model (Tinto, 1975; 1982; 1987; 1990), the model was not constructed from theories developed within the field of education to explain attrition in institutions. More precisely, the origins of the Student Integration Model can be found in the general theoretical postulate of Durkheim's (1961) sociological theory of suicide, whereby shared group values and friendship were predicted to reduce the risk of suicide. Spady (1970) used Durkheim's theory to postulate that grade performance, normative congruence and friendship support lead to increasing integration into the academic and social environment of higher education institutions. Based upon an extensive review of the retention literature, Spady formulated this basic assumption:
The dropout process is best explained by an interdisciplinary approach involving an interaction between the individual student and his particular college environment in which his attributes (i.e. dispositions, interests, attitudes and skills) are exposed to influences, expectations, and demands from a variety of sources (including courses, faculty members, administrators and peers). The interaction that results provides the student with the opportunity of assimilating successfully into both the academic and social system of the college. To the extent that the rewards available within either system appear insufficient, however, the student may decide to withdraw (1970, p. 77).

According to the Spady model, the decision to withdraw is influenced by two factors basic to the academic and social systems. In the academic system, grades and intellectual development exert the major influence, and social acceptance exerts the major influence in the social system. Although numerous early attrition researchers developed socially-based theoretical models of student attrition drawn largely from the work of Durkheim and Spady (see for example Weidman, 1985), Vincent Tinto developed a broader, synthetic predictive model of student departure which postulates that background experience, family background, personal characteristics and preparatory education interact with each other and influence commitment to the goal of graduation and commitment to the institution. Tinto’s model of attrition is primarily concerned with accounting for the differences within higher education environments between student dropout as academic failure and voluntary withdrawal (Tinto, 1975). Although the model considers the attributes, skills, abilities, commitments, and value orientations of entering students, its major focus is “the impact that the institution itself has, in both its formal and informal manifestations, on the withdrawal behaviours of its own students” (Tinto, 1982, p. 688). Tinto’s model consists of six sets of variables in a causal sequence: background characteristics, initial goal and institutional commitment, academic and social integration, subsequent goal and institutional commitment, intention to persist or withdraw, and persistence/withdrawal behaviour. Figure 2.3 provides a graphical representation of Tinto’s revised Student Integration Model.
Figure 2.3  Tinto's (1980) revised student integration model (Source: Design recreated from Webb, 1988, p. 219)
Tinto's model has been employed by numerous researchers to investigate the interaction of the student-institution relation and its effects on attrition, focusing on specific aspects of the relationship such as the educational environment, institutional type, and student withdrawal classifications in both traditional (e.g. see Wortman & Napoli, 1996) and non-traditional environs (e.g. distance education; see Sweet, 1986). In the classroom, research has identified that enhanced classroom learning experiences significantly influenced persistence rates (Tinto, 1997). The model has been established across diverse institutional types, and it appears that the variables having the greatest influence on persistence vary with the type of institution. In a two year commuter college setting for example, educational goal commitment was found to have a somewhat stronger direct effect on persistence than institutional commitment compared to four year residential or commuter institutions (Pascarella & Chapman, 1983).

In addition, Wortman and Napoli (1996) conducted a meta-analysis of six community college studies and found that positive academic and social integration student outcomes increased persistence rates. A study by Allen and Nelson (1989) at both a public college and a private university investigated the validity of Tinto's model of withdrawal. Apart from the information obtained from institution records, data for the study included surveys of students regarding their interactions with peers, faculty, and the institution, and regarding the educational goal commitments that resulted from integration into the social and academic systems of the institution. Results of the study were consistent with the Tinto model, with general outcomes for both facilities indicating that persistence was directly affected only by intention, though both institutional commitment and social integration had indirect effects on persistence; background characteristics played a minimal role in predicting persistence behaviour. For the private institution however, academic integration was seen to have a direct negative effect on academic persistence; and institutional commitment was strongly linked to social integration, but, contrary to theoretical expectations, goal commitment was not associated with academic integration. The latter finding, the authors concluded, was pivotal to retention (Allen & Nelson, 1989).
A study that examined the attrition differences between first year college students and high school graduates found that for college students, the most important predictor of persistence was their grade-point average achieved in the first year, but for the high school graduates, however, institutional commitment was the most important predictor of persistence (Beltzer, 1985). Interestingly, the author found that neither group differed in the rate of attrition (Beltzer, 1985). Hence various aspects of the Tinto model have been separately found to predict persistence for similar and different populations, in varying student circumstances and higher education environments.

A study by Allen (1994) investigating different types of withdrawal behaviour (i.e. dropout, transfer) found that three characteristics distinguished persisters from dropouts and from transfer students: greater encouragement from family, better academic performance, and greater commitment to the institution. Allen (1994) suggested that encouragement from family was the most significant of these factors. He also found that variables such as social integration, academic integration, college choice, goal commitment, degree aspirations, and attitudes toward financial aid programs explained student decisions to transfer to other institutions.

Drawing heavily from Tinto’s (1975) theoretical developments, Pascarella and Terenzini (1980) extended the model by postulating that the interaction of background characteristics such as family background, aptitudes, aspirations, goals, values, and secondary school achievement, with institutional characteristics such as size, image, administrative policies and decisions, admission and academic standards, influences of the frequency and quality of informal student-faculty contact, and other experiences predicted persistence and educational outcomes. Figure 2.4 is a graphical representation of the Pascarella model extension.
Figure 2.4  Pascarella's (1980) theoretical model of college student retention (Source: Design recreated from Webb, 1988, p. 221)
Pascarella and Terenzini (1980) developed an instrument designed to operationalise the major dimensions of the model described in Figure 2.4 (Pascarella, 1980), including factors such as the levels of academic integration, social integration, institutional commitment, and goal commitment. According to the authors the instrument proved strong, with results supporting the predictive validity of the Tinto model and successfully identifying potential dropouts among the general student population. Subsequent studies have continued to support both the use of Pascarella and Terenzini instrument (e.g. Beltzer, 1985; Fox, 1986), and Tinto’s conceptual model of attrition (e.g. Cleveland-Innes, 1994; Mutter, 1992; Halpin, 1990; Pascarella et al., 1986; Nora, Attinasi & Matonak, 1990; Nelson et al., 1984; Bers & Smith, 1991). Although there appears to be much support for the Student Integration Model of Attrition, there are a number of researchers who maintain that the major postulates of Tinto’s theory have been found to be unsubstantiated (Maxwell, 1998; Bean & Metzner, 1985; Yorke, 1999; Cabrera et al., 1990; Sandler, 1999), or that the unidimensional approach to measures of facets comprised within the model is unsound (Stage, 1989b). For example, Cleveland-Innes (1994) suggests that the Tinto model fails to allow for the measurement of factors external to the institution. Further, in a study that employed Tinto’s Integration Model to examine the attrition rates of 25 adult classes at a U.S. college of business, outcomes supported Tinto’s hypothesis that smaller classes which were socially integrated had better retention rates (Tinto, Russo & Kadol, 1994), however, student academic and career integration were found to have little effect (Ashar & Skenes, 1993). Allen (1994) concluded that factors such as attitudes toward financial aid programs, social integration, academic integration, college choice, goal commitment, and degree aspirations, all variables of significant import to the Tinto model, had no significant impact on a student’s decision to dropout from the institution. Kerka (1995, p. 4) suggests that for the non-traditional student, perhaps aspects such as “social integration may be better defined as how one integrates pursuit of education into one’s overall life”. Hence recent research has suggested that aspects of Tinto’s model may require refinement, but more importantly, and in regard to the present study, various postulates of the model may not meet the needs of the non-traditional student population.
**Student Attrition Model**

The Student Attrition Model is the other most utilised theoretical model applied by attrition researchers. The model was devised by John P. Bean in the late 1970's and has been regularly applied by other researchers since 1982. Bean suggested the Tinto model placed too much emphasis on socialisation as an explanation of student attrition (Bean, 1980). Further, the theorist posited that the non-traditional student circumstances did not permit the opportunity for social integration into the institution, and subsequently developed a conceptual, explanatory and longitudinal model of the college student dropout syndrome (Bean, 1982; Bean & Metzner, 1985). The model has subsequently been modified to meet specific aspects of retention, such as approach/avoidance behavioural patterns in college student attrition (Eaton and Bean, 1995). Figure 2.5 presents Bean and Metzner’s (1985) Conceptual Model of Non-traditional Student Attrition.

The final version of Bean’s theoretical model, referred to as the Conceptual Model of Non-Traditional Student Attrition (Bean & Metzner, 1985) remains a popular choice for application by attrition researchers. The theoretical postulates have been derived from behavioural theories (Eaton & Bean, 1995), and as Figure 2.5 would suggest, the model is based on the assumption that decisions to withdraw are formed primarily from four sets of variables. These include:

1. Background and defining variables such as age, residence, and highest level of education completed;
2. Environmental variables such as finance, work-related matters, human relationships and opportunity for transfer;
3. Academic variables such as study habits, counselling, absenteeism and course availability;
4. Psychological variables such as the perceived utility of the course, satisfaction with it, goal commitment and the stress caused by study (Bean & Metzner, 1985).
Figure 2.5  Bean and Metzner's (1985) conceptual model of non-traditional student attrition (Source: Design recreated from Webb, 1988, p. 224)
The model shown in Figure 2.5 posits that non-persistence results primarily from the effects of specific variable interactions, that is, Academic Performance (which is generally measured by GPA); Intent to Leave, which is influenced by Psychological Outcomes and Academic variables; the Background and Defining variables of high school performance and educational goals; and a large influence from the Environmental variables. Bean and Metzner (1985) have included two separate compensatory interaction effects within the model. The first occurs between the Academic and Environmental variable facets (e.g. finances, employment), where the authors believe that regardless of low academic values, as long as the direction of the environmental variables is positive the student is likely to persist in their study program. However, should the academic values be high for the student but the environmental values negative, the student is more likely to dropout. Bean and Metzner (1985) describe the second interaction between Academic outcomes and Psychological outcomes, where positive psychological aspects will result in student persistence despite low academic outcomes. Negative psychological outcomes however, are likely to result in the student dropping out despite high academic outcomes. Because of the nature of part-time studies, Bean’s model proposes that part-time adult student non-persistence patterns are less likely to be impacted by the effects of academic and social integration, and more likely to be influenced by interactions between academic and environmental variables, and academic and psychological variables. In 1995, Eaton and Bean expanded the model to incorporate the approach/avoidance postulate of behavioural theory. This later model focuses on the influence of coping behaviour regarding academic and social integration, student intentions, and non-persistence, and evaluates the influence of approach/avoidance as a theoretical construct as well as the influence of particular approach/avoidance factors on academic and social integration. The authors suggest that institutions can enhance student retention by developing programs that increase appropriate academic and social approach behaviours and reduce avoidance behaviours (Eaton & Bean, 1995). Thus the theoretical postulates proposed by Bean have been of great heuristic value to attrition researchers in that the model considers the non-traditional student and the influence of approach/avoidance factors in non-persistence patterns.
A Convergence Between the Student Integration and Student Attrition Models

To address the possible narrowness of one specific model, some researchers have used a combination of models either all at once, or a number of models over a period of time (e.g. Cabrera, Castaneda, Nora & Hengstler, 1992; Allen, 1994; Cabrera, Nora & Castaneda, 1993; Allen & Nora, 1995; Webb, 1989). For example, Allen (1984) applied Bean's Synthetic Model of Student Attrition to a relatively small cohort of university students in North Carolina in an attempt to distinguish persisters and non-persisters. He reported that non-persisters: were less satisfied with their overall experience at the college, had lower grade point averages, had higher scholastic aptitude verbal scores, took fewer credit hours, were less satisfied with their academic performance, had more difficulty doing class work, were more bored in class and did not feel they adjusted well to college, were less positive about their advisers, and had lower job expectations. A decade later the same researcher compared statistical outcomes based on Tinto's Theoretical Model of College Retention/Attrition and Bean's Student Attrition Model (Allen, 1994), achieving much the same outcomes as the original study. In contrast, an early study by Cabrera et al. (1990) found no support for either academic or social integration effects in their attrition research. However, in a later study Cabrera, Nora and Castaneda (1993) integrated four variables (i.e. intention, GPA, financial attitudes, and encouragement from others) from Bean's (1980) model, and four variables (i.e. academic and social integration, goal and institutional commitment) from Tinto's (1975) model and found that direct effects on attrition were predicted largely by Bean's model for intention, GPA and financial attitude, whereas indirect effects on attrition were predicted by Tinto's variables for academic and social integration, and goal and institutional commitment. In terms of total effects, the authors found the largest effects on attrition were predicted by intention, GPA, institutional commitment, and encouragement from others, and that the largest effects on intention were due to institutional commitment, encouragement from others, and goal commitment. Thus the presentation of outcomes resulting from the convergence of the Tinto and Bean models has demonstrated the usefulness of this approach to developing the postulates for individual research applications.
Until the late 1980's researchers in attrition typically used correlation and multiple regression techniques which have since been proven to be inadequate in describing relationships within a statistical model (Stage, 1988a). In regard to the Tinto and Bean theoretical models, numerous researchers (Bean, 1982; Bean & Metzner, 1985; Pascarella & Chapman, 1983; Pascarella & Terenzini, 1979, 1983) have used path analysis to investigate causal relationships among variables. These techniques have come under some criticism however, because using ordinary least sum of squares path analysis requires an assumption of no measurement error among variables, and such errors could lead to systematic bias in parameter estimates (Wolfe, 1985). Also, because attrition studies utilise a dichotomous variable (persistence/non-persistence) that encompasses rates of 5% or more dropouts, a highly skewed dependent variable results and violates the assumption of ordinary least squares regression that variables are normally distributed (Stage, 1988a). Oken, Benin and Brandt-Williams (1996, p. 579) suggest that these attrition models have largely ignored the issue of moderators in persistence behaviour patterns, and suggest that perhaps “this has occurred because the emphasis has been on testing causal models of college student departure which emanate from conceptual frameworks that do not specify such interaction effects.”

The theoretical models of Tinto and Bean have been instrumental in the development of new advances in research method and analysis for both quantitative (Nora & Cabrera, 1993; Cabrera et al., 1993) and qualitative (Walleri & Peglow-Hoch, 1988; Kember, 1999) approaches to the study of attrition. In one of the more psychometrically strong studies of attrition responsible for initiating these new directions, Nora and Cabrera (1993) tested the construct validity of the institutional commitment aspect of Tinto's (1975) model using confirmatory factor analysis. The study of 2,453 college students indicated that factors such as institutional quality and practical educational utility of the study program were more predictive of persistence patterns than the previous findings in past research that supported similarity of student/institutional values as a significant predictor of attrition (Nora & Cabrera, 1993).
In regard to the non-traditional higher education student population, Walleri and Peglow-Hoch (1988) applied qualitative methods to identify inconsistencies in the Tinto model. The authors suggested that these inconsistencies were the product of the heterogeneous nature of non-traditional student populations, combined with limited methodological approaches utilizing undifferentiated student tracking and standardized surveys. Personal interviews, preceded by a questionnaire on all aspects of academic and social integration, were conducted by the authors to identify and define variables associated with student success. Findings were found to be consistent with Tinto's model but inconsistent with recent research on non-traditional students. The authors believed that the case study approach, instead of aggregate quantitative methodology alone, and the focus on academically under-prepared students, rather than a larger student population, are probable reasons for the disparate findings in much of the past research that applied the Tinto model (Walleri & Peglow-Hoch, 1988). Hence, theoretical models have provided the basis for the recent advances in research method and statistical analyses.

**Summary: Major Theories of Attrition**

The two theoretical models presented for discussion are based largely on the work of Tinto (1975) and Bean (1980). Prior to the development of the Tinto and Bean models, most researchers had explored a myriad individual variables in relation to persistence but did little to tie them together conceptually (Stage, 1988a). The main features of these models can be summarised as follows. Tinto’s (1975) Theoretical Model of Student Integration postulates that successful academic and social integration of the student into the higher education institution determines persistence behaviour. Although the model considers the attributes, skills, abilities, commitments, and value orientations of entering students, its major focus is “the impact that the institution itself has, in both its formal and informal manifestations, on the withdrawal behaviours of its own students” (Tinto, 1982, p. 688). Bean’s (1982; Bean & Metzner, 1985; Metzner & Bean, 1987) Conceptual Model of Non-Traditional Student Attrition posits that non-
persistence results primarily from the effects of specific interactions between variables comprised by the model, where less emphasis is placed on the institutional integration of the student due to the characteristics of part-time study, and focuses more on the interaction of academic and environmental variables (e.g. academic advising and outside encouragement), and academic and psychological variables (e.g. study habits and stress). Each model has been criticised for disparate findings, and for the tendency of other researchers to generalise students' needs and experiences across diverse higher education environments without any evidence to make such generalisations (McInnis, James & Hartley, 2000; McInnis, James & McNaught, 1995; Williams, 1982). However, both major theorists purport that theory guides research in determining what variables should be studied and how they relate to what the research is attempting to explain, and suggest that the ongoing development of their models is a crucial feature of the theoretical base on which they were developed. An unfortunate limitation in the application of theoretical models, according to Tinto (1986), is that most tend to remain independent of each other, without reference to the combined or interactive effect of student, institutional and other factors on persistence. Thus despite the contribution made to the study of attrition, the disparate findings regarding null, direct and indirect effects of the variables comprised in the Tinto and Bean models, particularly for non-traditional student populations, calls into question the general application across diverse environments without consideration of and refinement to the conceptual framework on which each model is built. For the current study, a revision of various aspects of these theoretical models was considered necessary.

*Implications for the Present Investigation: A Researcher-Devised Model of Non-Traditional Student Attrition*

Given that previous research suggests that the Student Integration Model (Tinto, 1982) and the Student Attrition Model (Bean, 1980) could benefit from revision and refinement based on recent research advancements (Tinto, 1990), the current investigation was underpinned by a researcher-devised model that both synthesised and extended the features of those models in order to theorise the causes of attrition.
specifically in the TAFE environment. The literature regarding student attrition strongly suggests non-persistence behaviour occurs at various critical points throughout the student career. In brief, these critical points can be classified as either short-term (e.g. from enrolment to the student’s first class, or during the first term), or longer term (e.g. at the completion of the first semester, following third term of the first year, at the commencement of the second year etc.). The present study focuses on the critical attrition point that accounts for the largest single episode of attrition (Kambouri & Francis, 1994; Malicky & Norman, 1994; Quigley, 1995; White & Mosely, 1995)—the first 6 to 8 weeks of the new student study program.

Referred to as the Theoretical Model of Non-traditional Student Attrition, the model designed for the current research has two critical processes which are theorised to be sequential and causal in their ordering (see Figure 2.6). These processes are referred to as Pre-Enrolment Evaluation, and Re-evaluation and Disengagement. The first aspect describes the evaluation procedure undertaken by the student prior to or at the time of enrolment and the undertaking of the study commitment. The second aspect addresses the period (i.e. the first 6 to 8 weeks of the study program) where the process of re-evaluation of course participation, and subsequent separation and disengagement from the study commitment is commenced. In what follows is a more detailed account of the processes of the theorised model for the current study.

**Pre-enrolment evaluation: Undertaking the study commitment.** The model begins with consideration of the background variables identified in the Bean (1980) Model of Student Attrition (e.g. age, gender, enrolment status, high school performance etc.). The next level has four main aspects, two of which are again taken from the Bean model. These include Academic variables (e.g. study habits, academic advising, course availability) and Environmental variables (e.g. finances, hours of employment, outside encouragement). Previous discussion regarding these aspects of Beans (1980) model has identified the impact of these sets of variables on persistence behaviour.
Figure 2.6  Researcher-devised model of non-traditional student attrition
It is at this point that the model of attrition for the current study deviates from the Bean model. Two new factors are incorporated in the researcher-generated model to address the perceptions and evaluation processes that accompany the individual’s considerations of course participation. The third aspect of the second order variable sets, referred to as Perceptions of Utility, combines factors derived from both the Tinto (1975) and Bean (1980) models of attrition and considers both intrinsic (e.g. perceptions regarding enhancement of career and social mobility, psychological costs such as stress, level of commitment to the course), and extrinsic (e.g. positive/negative pressures generated by the expectations of others). The fourth and final variable set of the second order factors is referred to as Existing Self-Worth. It is highly unlikely that the prospective student enrols in their course of study with a “blank slate” of self-perceptions, but more likely to have generated a set of evaluations of self (e.g. pre-course perceptions of academic and social self-worth levels, risk evaluation of positive/negative impact to self-worth through course participation) as a product of their background and experiences. Perceptions of Utility and Existing Self-Worth facets are deemed to have the most potential to act as the benchmark from which students will make the determination to continue in or withdraw from their participation in the course of study. Recent research has identified the Perceptions of Utility factors separately as important potential predictors of attrition (Summers, 2003; Cabrera et al., 1993; Allen, 1994) and variables comprising the Existing Self-worth facets as powerful mediating variables to influence behavioural outcomes (Craven, Marsh & Burnett, 2003; Marsh & Yeung, 1997). The following is an overview of the two new domains.

*Perceptions of Utility and Course Demands* refers to the student’s assessment of the positive and negative aspects of course participation and the undertaking of the study commitment. This domain combines factors derived from both the Tinto (1975) and Bean (1980) models of attrition and considers both intrinsic (e.g. precepts regarding enhancement of career and social mobility, psychological costs such as stress, level of commitment to the course), and extrinsic (e.g. positive/negative pressures generated by the expectations of others) facets. Estimates of positive outcomes are made by the student regarding the potential for the program of study to enhance job and career prospects, professional standing, social standing, and class mobility. Evaluations also include dealing with the possibility of varying satisfaction
and stress levels, and the academic and social responsibilities that come with participating in the course. In other words, the student attempts to determine "Is the commitment to study worth it?"

*Existing Self-Worth* refers to the levels of academic and social self-concept levels that the student has at the time of considering the challenge of course participation. Quigley (1995) suggests that many non-persisters clearly value education, and although they may be motivated enough to enrol in a study program, negative past experiences of school and the resulting low self-worth may be too overwhelming for the student to continue in the study program. Malicky and Norman (1994) support this contention, but also include family experiences of the student as a significant influence in the development of student perceptions. Self-worth theory postulates that self-perceptions are determined by self-attributions, and that the individual formulates self-attributions and behaviour in order to achieve feelings of self-worth (Covington, 1984; 1992; Covington & Omelich, 1979). Although self-worth is considered synonymous with self-esteem (Craven, Marsh & Debus, 1991), research has established that the acquisition of a positive self-concept (see Chapter 3 for a more detailed discussion of self-concept constructs) is considered a desirable goal (Marsh, 1987; Craven, Marsh & Burnett, 2003), and may act as an important mediating variable that facilitates the attainment of other desirable outcomes, such as academic achievement (Shavelson, Hubner & Stanton, 1976; Marsh & Yeung, 1997), self-worth, self-efficacy and self-fulfilment (Marsh & Craven, 1997), and persistence (Tracey & Sedlacek, 1985; Miville & Sedlacek, 1991). Thus, the high importance placed on the enhancement of self-concept is usually based on the premise that high self-concept is associated with feelings of self-worth and self-acceptance (Craven et al., 1991). In regard to the influence of these constructs in the present model, it is theorised that a risk evaluation is undertaken by the student regarding the likelihood of failure and the potential effects on existing self-concept levels. In other words, the student considers the questions "What is the risk of feeling worse about myself?" and "What will others think of me?" as a result of attempting the course and failing. The model for the current study therefore postulates that the relation of the self-concept is as a mediating variable to the intended (or actual) persistence/non-persistence behaviour.
Taken together, these five factors (Background, Academic, Environmental, Course Utility and Self-Worth) are postulated as the process of evaluation that the student undertakes prior to course enrolment and participation. The depth of these evaluations will be different for every student and the combination of influences of the many variables comprised in each of the five pre-course factors will also vary between individuals.

Re-evaluation and disengagement: Separation from the study commitment. 

The second aspect of the model depicted in Figure 2.6 refers specifically to the period when the student begins a re-evaluation of their participation in the course of study and enters into a process of disengaging themselves from the study commitment. It is postulated that this action begins following their enrolment in (or their commitment to undertake) the course. This aspect of the model comprises another four new facets, including: Academic Self-Worth Adjustment; Social Self-Worth Adjustment; Re-evaluation of Participation; and the Disengagement Process. On each occasion that the academic and social self-concepts of the student are negatively impacted (as a result of the influence of the first and second order variable sets), further re-evaluation of their participation in the course occurs in conjunction with the increase in separation behaviour patterns. The process is theorised to be spiralling in nature and continues until disengagement from the study commitment is reached.

Academic- and Social Self-Worth Adjustment is defined as the process of adjustments made by the student to various and multiple facets of the academic and social self-concept levels that existed prior to undertaking the program of study. Research suggests that it is at this time of transition into the study program that the student is most vulnerable to withdrawal, with doubts of self-worth (Chickering, 1969) being one of the most common causes of attrition. Strategies to develop and maintain self-concept are viewed as a critical measure to be employed at this time (Jackson et al., 1996). Messer and Harter (1986, p. 2) suggest that “By measuring self-worth independently of competence/adequacy judgments we can address the relationship between self-worth and domain-specific self-perceptions”. Earlier research by Harter (1986a) had shown that this relation is mediated by the importance or the salience of specific self-worth domains. Based on the premise of
William James (1892/1963), who postulated that an individual’s overall self-esteem represents the ratio of one’s successes to one’s pretensions, Messer and Harter (1986, p. 2) posited that “if one is successful in domains deemed important, the individual will possess high self-esteem. Conversely, if one is not successful in areas where one aspires to be competent, the result will be low self-esteem”. A longitudinal study of 2 and 4 year university students \(N = 2,544\) by House (1993, p. 127) using logistic regression analyses, found that from the multiple measures of overall academic self-concept (i.e. students’ self-ratings of their overall academic ability), drive to achieve, mathematical ability, writing ability, and self-confidence in their intellectual ability included in the study, “students’ self-concept of their overall academic ability was the single most significant predictor of subsequent school withdrawal”. Hence it is suggested that the postulates of the researcher-developed model (i.e. that as the self-worth adjustments are made, the student begins a process of intercession, which for the student who will inevitably withdraw, fails and destabilises self-concept levels) is developed from a strong base of past research.

Re-evaluation refers to the process undertaken by the student in reconsidering their commitment to continue in their program of study as a consequence of the impact of adjustments to their academic and social self-worth. The student weighs the implications of withdrawal or persistence regarding the extent of negative outcomes on extrinsic aspects such as employment prospects and intrinsic factors such as self-esteem and self-efficacy. An ongoing interaction between re-evaluation and disengagement is subsequently set in motion.

Disengagement Process refers to the creation and employment of behaviour patterns by the student to achieve ever-increasing distance and separation from the study commitment. This process does not preclude the withdrawn individual from creating one of a host of socially acceptable explanations for having dropped out of their program of study, mostly citing factors external to their control (e.g. work demands, insufficient time for study, illness, financial difficulties, family demands). The phenomenon of attributing causes for failure to external sources was predicted and explained by attribution theory (Weiner, 1972; 1974), where for example, “those who do not complete a course prefer to attribute their withdrawal to factors outside their control in order to salvage some self-esteem. Those who succeed prefer to point
to internal causes in order to enhance their self-esteem. If anyone were to ask graduating students for the reasons for their success, no doubt most, if not all, would give reasons corresponding to internal control, such as hard work, perseverance or cleverness” (Kember, 1999, p. 114). Self-worth theorists also suggest that students use self-serving strategies to preserve public and private impressions of competency when risking failure (Craven et al., 1991). Cullen (1994) suggested that attrition researchers should be cautious regarding data collection in this area, as students may offer “last straw” reasons for dropping out when in reality they may be the least threatening to reveal.

*Intent to Leave* occurs for the student who has actually formulated such an intention. It is theorised that the student who forms an intention to leave still experiences the process of re-evaluation and disengagement, however, at some point there is a conscious decision taken to leave the study program. For the majority of non-persisters, however, it is theorised that as a result of the cyclic process of re-evaluation and disengagement, no formal decision to withdraw is actually made—the student in this case is simply no longer attending the course.

*Measurement interval.* A feature common to the Tinto and Bean models is that persistence studies should be longitudinal (Wortman & Napoli, 1996). Their models assume a long-term association between the student and the institution (generally for the duration of the first or freshman year), where changes in student characteristics that occur during student interaction with the institutional environment influence the decision whether or not to persist. It is suggested that research designs which precisely follow the established models in this regard may in fact impose limitations regarding research applications investigating the earlier critical points occurring in attrition. The current study deviates from the longitudinal model designs in that it specifically investigates the attrition episode that accounts for the largest number of student dropouts—the first term in the new student’s program of study. Outcomes reported in many longitudinal studies generally do not investigate the idiosyncrasies of first term persistence, but more typically consider this data as part of a first semester or first year study.
Based on the theory of planned behaviour (see Ajzen & Madden, 1986), where it is posited that the intention to act is the immediate antecedent of actual behaviour, Koslowsky (1993) recommended that to achieve reliable measures in the prediction of student persistence a relatively short time interval between measurement of the variable and the behaviour is necessary. However, House (1992) has found that in contrast to previously established research of relatively short duration, his longitudinal study examining student outcomes after 2 and 4 years following enrolment demonstrated the capacity of the longitudinal approach to more accurately identify prediction variables. Typically, the actual performance measure for early crisis point attrition research is generally derived from the end of first semester outcomes (more often returning second semester or returning second year outcomes) for the student, and typically long after the withdrawn student has actually dropped out. The theoretical model developed for the current study recognises the appropriateness of the longitudinal approach proposed by House (1992) and attempts to account for the attrition crisis points that occur at later stages throughout the student career. However, for the present investigation that focuses on the first attrition crisis point (i.e. 6 to 8 weeks), and the point where it is posited that the student commences the process of re-evaluation and disengagement, the duration for measurement between students’ initial ratings (e.g. self-concept, self-predication of course completion etc.) and the outcome measurement (i.e. continuing/withdrawn status) will be undertaken directly following the completion of the research period (i.e. at the commencement of Term 2). It is therefore posited that by focussing the attrition investigation at this particular crisis point more accurate measures of student intentions regarding persistence are likely to be achieved; measures of self-concept may be more valuable in identifying the vulnerable student; and an appropriately designed intervention may reduce the significant number of student withdrawals. In regard to the latter two assertions, the reader is referred to Chapters 3 and 4 respectively for more detailed discussion of these aspects.

**Student involvement and the non-traditional student.** Astin (1993, p. 398) proposes that peer group interaction promoting student involvement in the institution is “the single most potent source of influence on growth and development during the undergraduate years”. The author defines student involvement to comprise the following four criteria: the student devotes considerable energy to studying, the
student spends a lot of time on campus, the student participates actively in student organisations, and the student interacts frequently with faculty members and other students (Astin, 1993; 1985). According to Pacheco (1994), the criteria outlined by Astin (1993; 1985) also figure significantly into the academic and social integration features of the Tinto (1975) model of student attrition. The notion of student involvement however, serves to highlight the distinctive characteristics and circumstances of the traditional-age full-time student to that of the non-traditional mature-age student, who is typically a working student “with little available free-time and a sometimes discomforting feeling about the cultural and class milieu of the university to stick around and get properly integrated” (Pacheco, 1994, p. 54). In support of these contentions, the words of a teacher colleague may help to clarify the perceptions held by those who are most likely to know. In response to a survey that asked teacher participants to identify any differences in the student characteristics of full- and part-time students regarding academic and social integration, a teacher provided the following comments:

Adult learners are not typically between the ages of 17 and 21 years, but between 25 and 55 years. They are not attending full-time classes; they attend part-time classes generally because they work during the day. They do not receive supporting allowances via government benefits; they are required to earn their living and pay for their part-time study. They do not live with their parents (or in dormitories); they live with their partners (and families). They do not become involved in college activities; most college activities have closed for the day by the time they arrive for class. They do not spend a lot of their time at college socially integrating; unless social integration occurs during the 15 minute break mid-class. If social and academic integration is going to occur for the part-time student, it will have to be during one of the 3 hour classes that the student attends 2 to 3 times per week. The only interface the student has with the college is via the individual standing before the class, who is not only their teacher, but also college management, administration, counsellor, advisor and security. This is the nature of the circumstances of the part-time adult student – circumstances that are a far cry from those of the full-time student who arrives here straight from high school.

Thus the theoretical model developed for the purposes of the present investigation was designed to take account of these disparate attributes of non-traditional mature-age students by postulating a process where the student whose self-perceptions have been negatively impacted re-evaluates their participation in their course of study and enters a cyclic process of disengagement and separation from the study commitment.
Through the identification of constructs that act as mediating variables to persistence behaviour (i.e. self-concept constructs) it is theorised that effective measurement of their impact can alert the researcher to the student who is vulnerable to dropping out. With the application of an appropriate intervention, the impact of the theorised cyclic pattern of disengagement from the study commitment may be averted.

**Summary**

The purpose of this chapter was to examine the role and impact of factors previously identified in attrition research as causes of attrition in higher education. Past theoretical assertions have identified attrition to be the result of a failed interaction between the student and the institution, and despite this one central theme throughout many decades of attrition research, persistence rates reported in U.S. college and university studies have continued to remain consistently high for more than a century now. This is not to suggest that student-institution interaction is irrelevant, however, given that there is very little opportunity for the building of student-institution relations in TAFE’s part-time study programs suggests that causes for attrition may not necessarily be based in integration outcomes. The current study proposes that the challenge of a new and uncertain environment that requires one to meet the rigor of study and established standards of academic ability and the demands of interpersonal interaction are more likely to be the contributing factors in the decision of the mature-age student to withdraw. The current study proposes that causes for student dropout may be found in the interaction of various self-concepts with a student initiated process of re-evaluation of course participation and subsequent disengagement by the student from their study commitment. The conceptual model developed for the current study is short-term and crisis specific, designed to explain and test attrition for the non-traditional mature-age and part-time student populations specifically. Non-persistence behaviour is attributed to the disorder experienced by the student in academic and social self-worth (self-concepts) that inevitably lead to a student initiated process of forming an intention to, or actually disengaging from the study commitment.
CHAPTER 3
THE MULTIDIMENSIONAL STRUCTURE OF SELF-CONCEPT AND ITS RELATION TO STUDENT PERSISTENCE PATTERNS

Introduction

The purpose of this chapter is to present an examination of one of the central areas of focus for the current study—the multidimensionality of self-concept and its relevance to and relation with mature-age student retention in higher education. Another major aim of the chapter is to identify avenues for the current study to capitalise on and extend recent advances in self-concept theory and research. An overview of the research regarding self-concept is presented, with particular emphasis on the Shavelson, Hubner and Stanton (1976) and the Marsh/Shavelson (1985) models that advocate the hierarchical and multidimensional nature of the construct. The strong psychometric basis from which various instruments to measure self-concept were developed and their relation to student persistence patterns is also examined, and the implications of self-concept theory and research for the present investigation are then discussed.

Development of Self-Concept and Relevance of the Construct to Attrition Research

The idea of trying to know and understand oneself can be traced back many centuries in the history of art, music, literature, and other areas of the humanities, representing the artist's, composer's or author's means of self-expression and the revelation of personal feelings, values, world views, and the like through their work (Beane & Lipka, 1984). Throughout the last century, and more particularly over the last three decades, interest in the self-concept construct has increased dramatically
(Hepburn, 1993). This interest however, is much less concerned with the humanities, but is instead directed to the scientific analysis of self-concept in terms of its structure and relation to other constructs. The impetus behind this scientific endeavour evolved largely from the work of William James (Carlson, 1990; Hattie, 2000).

James developed a theory of self through personal introspection and observation of others’ behaviour and attitudes (Bracken, 1996). James suggested that the self is both a “knower” and an object of knowledge, in other words, the self may act as a thinker and perceiver, as well as an object to be thought about (James, 1892/1963). An individual may think and know about many things, but when thinking about him or herself, a process of considering three hierarchical “selves” is undertaken by the individual, where a material self considers one’s body and personal possessions (the lowest tier of the hierarchy), a social self involving a sense of human relations and status, and a spiritual self centred in desires, inclinations and emotions (Bracken, 1996). All of these, according to James, act in a dynamic way as we seek self-preservation and self-enhancement (James, 1892/1963). Although James’ hierarchical model has never been substantiated, his notions of hierarchical ordering and the multidimensional nature of self-concept have largely been ignored for the best part of a century (Hattie, 2000).

Cooley (1902) speculated that the self is actually a “looking-glass self”, and therefore the process of knowing about oneself is actually one in which we come to view ourselves as we believe others view us. This notion can be interpreted simply in the sense that self-perceptions are a function of feedback from others (Messer & Harter, 1986). Mead (1934) further developed this notion by suggesting that self-perceptions actually develop in a context of social interaction and are largely influenced by the feedback an individual gets from others. Mead (1934) also contributed to the notion that self-perceptions are multidimensional, consisting of perceptions of the various roles one plays, and hierarchical in that some of these dimensions are more important to us than others. A more refined theory of the function of feedback from others was developed by Sullivan (1953), who noted that individuals placed more importance on, or were more influenced by feedback from “significant others” (i.e. those of the highest importance to the individual).
Rosenberg (1979) offered a more precise interpretation of significant others in reporting his research which showed that children, for example, rank their mothers as most significant, followed by fathers, siblings, teachers, friends and general peers.

Carl Rogers (1951) recognised the power of self-concept and the central role it plays in the unity and maintenance of the individual's personality. For example, Rogers suggests that the world of the individual consists of what one perceives the world to be, which may be more or less different from what the world really is. In other words, what is true for the individual is what he or she perceives to be true, regardless of whether the perceived truth has any basis in fact (Rogers, 1951). One with positive self-concepts is therefore purported to be a more contented individual than one with negative self-concepts (Swann, 1996), and the formation of positive self-concepts is therefore an integral aspect of the individual's personal and social adjustment (Coopersmith, 1967). DeSteno and Salovey (1997) suggest that the recognition or awareness of this process is often at an unconscious level.

The contributions of many researchers have provided valuable insight into the evolving theory of self-concepts and the role these constructs play in human growth and development. The consistent themes that result from almost a century of research in this area have been summarised by Beane and Lipka (1984) as follows:

1. The concept of self has a central place in personality, acting as a source of unity and as a guide to behaviour;
2. Self-concepts are multidimensional and hierarchical, although at one level they tend to blend into a general sense of self;
3. Self-concepts tend to seek stability, consistency and enhancement;
4. Self-concepts may be based on roles played by the individual, as well as attributes one believes he or she possesses; and
5. While the self may be the "initiator", self-concepts develop mainly in a social context, influenced largely by feedback from significant others.

The acquisition of a positive self-concept is considered a desirable goal (Marsh, 1987), and may act as an important mediating variable that facilitates the attainment of other desirable outcomes, such as academic achievement (Shavelson et
al., 1976) and self-fulfilment (Marsh & Craven, 1997). Self-concept constructs have played a relatively minor role in over 75 years of attrition research, and although a number of self-concept researchers (Marsh & Craven, 1997; Byrne, 1996; Marsh, 1993) suggest that the last two decades particularly have seen a renewed and more vigorous interest in the study of self-concept, research related to the investigation of the role of self-concept in relation to attrition remain rare. The literature suggests that the direction to result from this resurgence of interest typically utilises self-concept constructs to explain various types of behaviour exhibited in many situations across diverse fields of study, including education and psychology, and more recently employment and the elderly (Byrne, 1996). Swann (1996) suggests that in general, people who view themselves positively tend to be happier than those who do not, and from a mental health perspective, Harter (1990) reports that practitioners have come to appreciate that a positive self-concept is central to the adaptive functioning and everyday happiness of the individual.

Development of the self-concept is consistently stated in educational policies throughout the world as one of the major goals of the education process. Agreement between the Australian Commonwealth and its States and Territories regarding the goals set for students in school programs was identified in a report by the Ministerial Council on Education, Employment, Training and Youth Affairs. The second goal of the Report cites that on leaving school, students should “have qualities of self-confidence, optimism, high self-esteem, and a commitment to personal excellence as a basis for their potential life roles as family, community and workforce members” (The Adelaide Declaration on National Goals for Schooling in the Twenty-first Century, 1999, p. 3). TAFE, as part of the Department of Education and Training, is obliged to maintain this philosophy within the higher education environment.

Accurately measuring self-concept facets has therefore become a major focus for self-concept research in education as a consequence, and the structure and nature of the construct has become a focal issue for research in areas such as health, interpersonal relationships, and employment. However, this same interest is not apparent for mature-age students in higher education.
The Structure and Nature of Self-Concept

A number of researchers have emphasised in their study of self-concept a general or overall single assessment of the construct (e.g. Rosenberg's Self-Esteem Scale, 1979). Reviews of self-concept research (e.g. Hattie, 2000, 1992, 1986; Byrne, 1984; Burns, 1979; Shavelson, Hubner & Stanton, 1976; Wells & Maxwell, 1976; Wylie, 1974, 1979) emphasise the limitations of the unidimensional approach to measurement of the construct, typically suggesting that this method of self-concept measurement suffers from a lack of a theoretical basis in most studies, a poor quality of measurement instruments used to assess self-concept, methodological short-comings, and a general lack of consistent findings.

Although the multidimensionality of self-concepts had been measured in a number of early instruments (e.g. Fitt's Tennessee Self-Concept Scale, 1965), many researchers continued to use a unidimensional instrument that employed a wide range of items which were summed for a total self-concept score (Messer & Harter, 1986). This single measure is often referred to as a “general” or “global” self-concept, or has on other occasions been identified as a single “self-esteem” outcome. Despite the ongoing use of the term in the self-concept literature, there appears to be little separation or distinction in its meaning. As has been done in more recent self-concept research (e.g. Marsh, 1993; Marsh & Craven, 1997), the term “general self-concept” has been utilised to represent all single measure outcomes of self-concept or global self-esteem.

The unidimensional approach to self-concept measurement has been challenged for its psychometric value (see Marsh & Hattie, 1996), and outcomes derived from the method have been described by a number of researchers as not only dubious, but possibly responsible for “the contradictory findings which abound in self-concept research” (Marsh, 1988, p. 40). Unidimensional limitations have been further compounded through a determined use by researchers of a the single, “global” self-concept measure for between-construct studies, whereby self-concept was related to other variables prior to addressing within-construct issues, resulting in a compounding risk of error for interpretation (Craven et al., 2003). According to Marsh and Craven (1997), the aim of researchers applying a unidimensional measure
appeared to be an attempt to include the single score in analyses in the hope that something significant would be identified.

Harter (1990) argues that a general self-concept score masks important distinctions that individuals make about their adequacy in different domains of their lives. Marsh and Shavelson (1985) caution that the danger inherent in the unidimensional model that uses a single, global self-concept measure is that the single pieces of the self-concept puzzle would be either missing or remain unidentified, and could therefore not be interpreted or recognised. Marsh and Holmes (1990) further contended that poor measurement of self-concept had persisted as the weakest link connecting theory, empirical research and practice in self-concept research.

Numerous models have been constructed which conceptualise self-concept as multidimensional (Marsh & Hattie, 1996). Central to the multidimensionality of self-concept is the premise that multiple aspects of self-concept are independent or only weakly correlated to each other (Soares & Soares, 1980; Tesser & Campbell, 1983; Marsh, 1987a). A number of other self-concept researchers propose a theoretical structure that allows the multiple domain-specific self-concepts to be correlated both among themselves and with a separate facet of general self-concept (Harter, 1985). Self-concept theorists Winne and Marx (1981) developed a model whereby negatively viewed aspects of oneself will be compensated for by viewing other aspects of oneself more positively. The taxonomic model of self-concept, inspired by Guilford’s (1969) structure of the intellect model, states that components of the model reflect the intersection of two or more facets, each having at least two levels. Thus, despite a number of early theorists having identified the possibility of a multidimensional structure to the self-concept construct, a determined focus by researchers to employ a unidimensional approach to self-concept resulted for almost a century.

The Shavelson, Hubner and Stanton (1976) Model of Self-Concept

More recent research based on a construct validity approach has demonstrated that self-concept is a multidimensional construct (Byrne, 1984; Marsh
& Gouvenet, 1989). In their review of the theory and research of multidimensional self-concept, Shavelson, Hubner and Stanton (1976) concluded:

It appears that self-concept research has addressed itself to substantive problems before problems of definition, measurement, and interpretation have been resolved. Until these problems have been dealt with in a manner made possible by advances in construct validation methodology, the generalisability of self-concept findings will be severely limited, and data on students’ self-concepts will continue to be ambiguous (p. 410).

Following their review of empirical and theoretical self-concept research, Shavelson et al. (1976) identified the following as salient characteristics of the construct, suggesting that self-concept is:

1. Organised or structured;
2. Multifaceted;
3. Hierarchically arranged: with inferences of the individual’s behaviour featured at the base; then inferences about the self in specific areas; followed by inferences about the self in general at the apex of the model;
4. Increasingly situation-specific and therefore less stable: at the apex, the hierarchical general self-concept is stable, but as the individual descends the hierarchy self-concept becomes increasingly situation-specific and less stable;
5. Increasingly differentiated with age;
6. Both evaluative and descriptive; and
7. Differentiable from other constructs.

The Shavelson et al. (1976) model has General self-concept (i.e. how the individual generally feels about themselves as opposed to a total self-concept score) at a conceptual apex which then separates into academic and non-academic self-concept streams. The academic stream comprises self-concepts that examine mathematics and reading, while the non-academic branch consists of three broader domains, including social (i.e. relationships with peers and significant others), emotional self-concept, and physical self-concepts (i.e. physical ability and physical
appearance). However, because of the absence of appropriate instrumentation to measure the multidimensionality of self-concept available at the time, Shavelson et al. (1976) found little other than moderate support for their model. Thus the basic assumption of the multidimensionality of self-concepts by Shavelson et al. had provided the impetus for the subsequent development of research and understanding of within-construct issues.

The Marsh/Shavelson (1985) Model of Self-Concept

Research by Marsh and Shavelson (1985) generally found support for the Shavelson et al. (1976) model, however, the proposed self-concept hierarchy proved more substantial than the original model suggested. Further research by Marsh (1986b) highlighted a paradox in which students appeared to generate a frame of reference that incorporates an internal/external comparison process whereby students compare their own relative abilities in academic areas (internal process) with those of other students (external process; Marsh, 1986a). Subsequent research findings (Marsh, Byrne & Shavelson, 1988; Marsh & Shavelson, 1985; Shavelson & Marsh, 1986) led to a revised model that posited second order components to various self-concept domains of the Shavelson et al. model.

In short, the internal/external frame of reference extension to the Shavelson et al. (1976) model identified that although the Mathematics and Reading self-concepts were characterised in terms of a single, higher-order academic self-concept because they were believed to substantially correlate, extensive research of Self Descriptive Questionnaire responses indicated that the correlations between Mathematics and Reading self-concept were close to zero. This statistical outcome determined that the two self-concept facets could be incorporated into a general academic self-concept as previously proposed by Shavelson et al. (see for example Marsh 1986a; Marsh & Hocevar, 1985; Marsh & Parker, 1984; Marsh & Shavelson, 1985; Marsh, Byrne & Shavelson, 1988; Marsh & Yeung, 2001). This contradiction was resolved by Marsh (1986a) by firstly proposing a revised theoretical model which redefined the structure of academic self-concepts, referred to in the literature as the Marsh/Shavelson model (see Marsh & Shavelson, 1985), and secondly, by formulating the Internal/External Frame of Reference model (the I/E model). The I/E model (Marsh, 1986a) posits the
formation of students’ perceptions of their own academic competence to be based on two comparison processes (frames of reference). Marsh and Yeung (2001) explain that the first process assumes an internal frame of reference, and occurs when students compare their own ability in one course module to their own abilities in other course modules. The second process is considered an external frame of reference (or social comparison), occurring when students compare their self-perceived abilities in particular course modules with the perceived abilities of other students in the same course module and any other objective indicators of actual achievement (Marsh & Yeung, 2001). Therefore, a high academic self-concept results when students perceive themselves to be academically able in comparison to other students and other objective indicators of achievement. Marsh and Yeung (2001) suggest that the external frame of reference should result in positive correlations between Math and Verbal self-concepts because math and verbal achievements are highly positively correlated. However, according to the I/E model a negative correlation between Math and Verbal self-concepts should prevail as a result of the student’s internal frame of reference, because an increase in any one score must result in the counterbalancing decrease in the average of the remaining scores. It is clear that both the internal and external frames of reference affect self-concept response outcomes, and depending on the relative weight given to each process, the collective effect of these processes is consistent with the near-zero correlation between the Math and Verbal self-concepts identified in the revised Marsh/Shavelson model (Marsh & Yeung, 2001).

Although improvements to student academic achievement levels is not a pursuit of the current study, the establishing of findings (Marsh, 1990a; Marsh & Craven, 1997) that demonstrate the clear “causal predominance” of academic self-concept over academic achievement (i.e. that changes in self-concept may result in changes to achievement), and the confirmation (Marsh & Yeung, 1997) of the reciprocal relationship between academic self-concept and achievement (i.e. changes in academic achievement effect academic self-concept and vice versa) may have broader implications regarding mature-age attrition. These results suggest that interventions that successfully produce changes in the appropriate area of self-concept and achievement are more likely to have long-lasting effects than studies that focus exclusively on either academic self-concept or academic achievement in
isolation (Craven et al., 2003). In regard to the future of self-concept research, Bracken (1996) suggests that the complexity of self-concept continues to be clarified through the development of measures that can capture such dimensionalities (see also Byrne, 1996; Marsh, Byrne & Shavelson, 1988). Hence, not only have the latest advances in self-concept research methodologies provided clear evidence of the structure and nature of the construct, but have also clarified the causal dominance of self-concept (e.g. academic self-concept) over other desirable outcomes (e.g. academic achievement) and the reciprocal relationship that exists between the two.

**Distinctions Between Terms Used to Describe Various Constructs of Self**

Reference to constructs such as self-esteem, self-worth and self-confidence often appear in the literature, estimated to be around a third of that for self-concept, but typically interpreting and reporting similar student outcomes to self-concept measures (Hattie, 1992). It appears that researchers tend to use several terms as though they are interchangeable with self-concept. Bracken and Mills (1994, pp.23) in their study of ten self-concept instruments discovered that some researchers had misconstrued the meaning of numerous other terms critical to those studies, “it seems that the various test authors believe terms such as self-concept, self worth, and self esteem all relate to the same general construct”. Noted self-concept researchers (Marsh, 1987a; Bracken, 1996; Byrne, 1996) have made a clear distinction between the terms, indicating that self-esteem is more specifically an emotional evaluation of the self, and that if our perception of the self varies more from reality than our self-esteem, then self-concept is affected. Self-perception is considered to be the gaining of insight into one’s possible “selves” and self-concept is the actual framework in which the self is understood (Bracken, 1996; Hattie, 1992). Self-worth is defined as broad measures comprised of multiple facets of domain-specific self-concepts (Harter, 1986). Thus clear distinctions regarding terms used in self research have been identified to ensure appropriate application in the current study.

**Measuring the Multidimensionality of Student Self-Concepts**

The greatest contribution to the design of the self-concept instrument to be used in the current study emanates from the research of Marsh (1988) and the
development of the Self Descriptive Questionnaires (SDQ). More specifically, the instrument selected for adaptation in this study is the SDQ III, originally developed for application to older adolescent and young adult students. Localising the SDQ III required extensive testing and substantial modification to meet the characteristics of the mature-age student population participating in the present investigation. The following provides an overview of the process involved in the development of the self-concept instrument used in the current study, an examination of the issues regarding short form construction, and an outline of the various other self-concept instruments that contributed to its design.

Development of the Self Descriptive Questionnaires

Based largely on the Shavelson et al. (1976) multidimensional model of self-concept, the SDQ instruments were developed in response to the need for instruments of measurement that combined the elements of self-concept theory and empirical research (Byrne, 1996) to test the construct validity of the model (Marsh & Craven, 1997). Included in the battery of SDQ instruments is the SDQ I (for preadolescent primary school children), the SDQ II (for adolescent high school students), and the SDQ III, which is designed to measure the self-concepts of older adolescent and young adults (see Marsh 1992 for the most recent validation summaries). The SDQ series have been developed from a fusion of a strong theoretical base and construct validation through myriad of confirmatory factor analyses, resulting in the suite of instruments being identified as the strongest self-concept measures available internationally (Hattie, 1992; Marsh & Craven, 1997).

The SDQ III (Marsh, 1992) comprises 136 items which assess four areas of academic self-concept (Verbal, Mathematics, Problem Solving and Academic self-concepts), eight areas of non-academic self-concept (Physical Ability, Physical Appearance, Same Sex, Opposite Sex, Parent Relationships, Religion, Emotional Stability, and Honesty self-concepts), and General Esteem self-concept (i.e. how the individual generally feels about themself). The SDQ III also provides the opportunity to produce three total scores by combining the ratings of various self-concept subscales: academic self-concept (the mean outcome of Verbal, Mathematics, Problem Solving and Academic self-concepts), non-academic self-concept (the mean of Physical Ability, Physical Appearance, Same Sex, Opposite Sex, Parent Relationships,
Religion, Emotional Stability, and Honesty self-concept), and Total self-concept (the average of all thirteen self-concept subscales). Chapter 6 provides a more detailed overview of the psychometric properties of the SDQ III instrument.

Extrapolation of the outcomes from the revised Marsh/Shavelson model of self-concept predicts that correlations among the eight non-academic SDQ III scales (Physical Ability, Physical Appearance, Opposite Sex, Same Sex, Religion, Emotional Stability, Honesty and Parents self-concepts) will be more positively correlated with each other than with the four academic SDQ III scales (Mathematics, Verbal, Problem Solving and Academic self-concepts), and the correlation between the SDQ III scales of Mathematics and Academic, and Verbal and Academic, will be substantially higher than correlations between any of the four academic scales and the eight non-academic scales. These and similar predictions for the other SDQ instruments have been validated through numerous research studies (see Marsh, 1989; Marsh & Craven, 1997).

Although the psychometric aspects of the SDQ instruments are discussed in far greater detail in Chapter 6, suffice it to say that the development and subsequent psychometric validation of the battery of SDQ instruments by Marsh (1990a) led Hattie (1992, pp. 82-83) to conclude that the SDQ instruments were “an excellent measure of the various first-order dimensions of self-concept as proposed by Shavelson et al. (1976). The estimates of reliability are consistently high, and tests are based on a multifaceted model of self-concept. The set of SDQs are the best set of measures available”. The multidimensional nature and hierarchical structure of the Shavelson et al. (1976) model is now reported to be “the most extensively validated model of self-concept to date” (Byrne, 1996, p. 23), utilizing instruments considered to be among the best multidimensional instruments available in terms of psychometric properties and construct validation research (Boyle, 1994; Byrne, 1984; Hattie, 1992; Wylie, 1989).

Hence the multidimensional and hierarchical model of self-concept by Shavelson et al. (1976), together with the revisions to the model by Marsh and Shavelson (1985; Marsh, 1990c), was subsequently chosen as the basis for the experimental study designed for the current research. However, much of the self-
concept research in attrition studies, particularly for mature-age students in higher education, suffers from limitations to a level similar to that which led Shavelson et al. to devise their multidimensional model. Consequently, there is little in the way of reference material for the current study particularly in regard to instruments that measure multidimensional aspects of self-concept under circumstances that have improved student retention rates as a desirable outcome. Thus, in order to obviate the psychometric problems and limitations generally found in self-concept/attrition studies, it was essential to apply the recent advances in self-concept research methodologies and analysis techniques.

Our ability to effectively measure the multifaceted aspects of self-concept constructs has resulted from the significant contribution made by the SDQ instruments, providing a basis from which to extend theoretical knowledge of the structure and nature of self-concept. For the current study however, and in order to measure the more substantial characteristics of a mature-age student population (e.g. work, familial and social considerations), the original design of the SDQ III required extension of the self-concept facets to be measured, yet necessitated a significant reduction in the number of items to achieve a more timely application of the instrument. The following is an overview of the recent debate regarding the construction of short forms from their original long form design, based on the outcomes of a study that examined a reduced version of one of the SDQ instruments.

**Guidelines for Short Form Construction**

Despite the popularity of reducing a long form instrument to a shorter version, critics of the practice (e.g. Levy, 1968; Smith & McCarthy, 1995; Smith, McCarthy & Anderson, 2000) have argued that the resulting short form is never or rarely justified, and recent reviews of short forms indicate that actual practice falls far short of ideal or even reasonable standards. Smith, et al. (2000) report that not one short form instrument that the authors examined in the research literature met their nine point criteria for appropriate psychometric integrity. Because the major instrument to be applied in the current study is a short form version of the SDQ III, this issue is of course very relevant and therefore requires further investigation.
In response to the work of Smith et al. regarding the psychometric problems associated with the reduction of established instruments (referred to as sins of the short form), Marsh, Ellis, Parada and Richards (in press) examined the proposed set of methodological guidelines for the development of short forms by Smith et al. The Marsh et al. study was both methodological (introducing new statistical procedures that provide a stronger basis for the development and evaluation of short forms than has previously been employed) and applied (by demonstrating the appropriateness of the new, short version of the widely used and highly regarded SDQ II (Marsh, 1992) instrument that is designed to measure multiple dimensions of self-concept). The following is an overview of the pertinent aspects of the Marsh et al. response regarding their evaluation of the nine methodological guidelines by Smith et al. (2000).

1. **Start with a strong instrument.** Marsh et al. suggest that this recommendation is critically important, underpinning the entire process of short form development and many of the subsequent guidelines. The authors believe it to make absolutely no sense to develop a short form of a psychometrically weak instrument or to retain the coverage of each factor and the factor structure of the long form of the instrument and so forth. This aspect was extremely relevant to the discussion because many widely used measures are psychometrically weak (Marsh et al., 2003).

2. **Show that the short form retains the content coverage of each factor.** Marsh et al. report that this is only one criterion used for selecting SDQ items for short form application. Another criterion is minimizing correlated uniquenesses to eliminate items that were highly redundant without reducing the content coverage. The authors state that the invariance of the factor structure based on responses full SDQ version of the instrument by the normative archive group and the new short version by the cross-validation sample demonstrates that the content coverage of the two instruments was reasonably invariant (Marsh et al., 2003).

3. **Show that each factor on the short form is adequately reliable.** Smith et al. considered reliability coefficients for relevant scales below .7 to be inadequate. In regard to SDQ instruments, reliability estimates of at least .8 for each of the SDQ III scales are typically achieved on the short form.
4. *Demonstrate that the short form has adequate overlapping variance with the original, long form based on independent administrations.* Smith et al. recommend that both the short and long forms be administered to the same new sample; however Marsh et al. argued that this approach was both impractical and unnecessary. The authors demonstrated that a CFA multi-group invariance approach of two independent samples, where one sample completes the short form and the other the long form, is a practical and viable alternative that is methodologically stronger than that proposed by Smith et al.

5. *Show that the short form retains the factor structure of the original form.* Marsh et al. suggest that complying with guidelines 2 and 3 achieves this criterion.

6. *If appropriate, show that factors on the short form preserve the content of sub-domains or facets of each factor in the long form.* This guideline is not applicable as the factors comprising the SDQ instruments do not contain sub-domains or sub-facets.

7. *Show that each factor has validity in an independent sample.* Implicit in the Smith et al. discussion is a criterion-related approach to validity. Marsh et al. argue that this historical reliance of psychological measurement on criterion-related validity has largely been superseded by a more encompassing construct validity approach. This particular recommendation is less relevant for instruments designed from a construct validity approach in which there are a potentially large number of relevant criteria, and particularly for multidimensional instruments for which there are likely to be different criteria for each factor. Marsh et al. report that particularly for multidimensional instruments, Multitrait-Multimethod designs are especially appropriate and have been used widely in self-concept research.

8. *If appropriate, show that classification rates remain high with the short form.* This guideline is not appropriate for SDQ instrumentation, as it is not intended for classification to discrete classification categories.

9. *Show that the trade-off in savings of time and resources is acceptable in relation to potential loss of validity.* Marsh et al. suggest that this guideline must be evaluated in relation to a specific application, particularly in the
context of using the SDQ instrument as part of a more extensive test battery, reducing the number of items by 50% can be argued to reduce the testing time by nearly half with no appreciable loss of psychometric integrity (e.g. for the SDQ II that formed the application aspect of the Marsh et al. (2003) study, the mean reliability was .88 for the long form and .84 for the short form).

Marsh et al. noted that absent from the methodological criteria outlined by Smith et al. (2000) was what the authors considered to be one of the most serious “sins” in the development of many psychological measures and, by implication, the development of short forms. Specifically, psychological measures should be developed from a strong theoretical basis, and this theoretical perspective should be an important component of the evaluation of corresponding short forms. Marsh (1993; Marsh, Craven & Debus, 1998) argued that theory, measurement, research, and practice are inexorably intertwined so that the neglect of one will undermine the others. Hence the development, evaluation, and refinement of the short measure used in the current study, like the long form upon which it is based, is an on-going process that is informed by theory, empirical research based on strong methodology, and actual application (Marsh et al., 2003). Hence the above outcomes have provided strong psychometric guidelines for the development of the short form for the current study.

Contributions from Other Self-Concept Instruments

A broad range of instruments of vastly different designs have been developed to measure self-concept constructs. Self-concept and related instruments that make regular appearances in attrition literature are still typically of the unidimensional form. Hattie (1992) reports that of the studies selected for his meta-analysis that contrasted cognitive and affective self-concept interventions, 66% used a unidimensional, global self-concept score. However, multidimensional instruments are increasingly appearing in the literature. The purpose of the following section is simply to provide an overview of the self-concept instruments that have contributed to the development of the instrument used in the current study.
**The Tennessee Self-Concept Scale.** One instrument typically used in persistence studies is the Tennessee Self-Concept Scale (Fitt, 1965; Roid & Fitts, 1988; Bracken, 1996; Byrne, 1996; Butler, 1998; Caracelli, 1986; Messer & Harter, 1986; Martel and Richman, 1985). The original design of the instrument was unidimensional (see Roid & Fitts, 1965), however, the form was reconstructed to measure multidimensional facets of self-concept in 1988 and again in 1994 (Byrne, 1996; Roid & Fitts, 1988). The latest version of the instrument comprises a 36-item question set which can be classified into positive or negative self-concept scales and/or drawn together to produce one overall total score. Although the Tennessee Self-Concept Scale has been used more extensively in clinical and counselling research (Byrne, 1996), it has also been utilised in studies of two-year college students regarding many issues, such as student persistence patterns (Caracelli, 1986), alcohol consumption and its impact on student self-concept (Parish & Parish, 1991), and the role of the construct in personality development (Butler, 1998).

Reports in the literature suggest that the greatest strength of the Tennessee Self-Concept Scale is in supporting the establishment of personality profiles (e.g. see Butler, 1998; Caracelli, 1986). However for the purposes of this thesis, profile development is not an intended goal in the present study. Further, despite the potential to use the positive and negative scaling of the instrument in analyses, testing of the instrument identified that the separate measures were not particularly strong, and drawing them together for a global self-concept measure produced only a slightly better outcome. This finding is supported with the investigations of other researchers regarding the validity of the Tennessee Self-Concept Scale, where for example, a study by Tzeng, Maxey, Fortier and Landis (1985) concluded the Tennessee Self-Concept Scale had a conflicting and unsubstantiated factor structure that was contradictory to its later multidimensional theoretical construction. The shortcomings of the instrument identified by Tzeng et al. (1985) were again confirmed in a later analysis by Bishop, Walling and Walker (1997). What was impressive about the Tennessee Self-Concept Scale was its concise design, an important characteristic necessary for the format and structure of the instrument to be used in the current study.
Adult Self-Perception Profile. Harter (1982, 1983, 1985; Harter & Pike 1984; Messer & Harter 1986; Neemann & Harter, 1986) developed the Self-Perception Profile for Children, an instrument designed to measure a child’s self-concept across various domains. The Adult Self-Perception Profile was devised some time later in response to the need for a psychometrically sound instrument that adequately reflected the complexity of a multidimensional adult self-concept (Messer & Harter, 1986). The adult version of the instrument was primarily designed for use as a diagnostic utility to be used in association with a battery of psychological tests for clinical assessment. Subscales comprise four items each, and address the following domains: Sociability, Nurturance, Athletic Competence, Physical Appearance, Adequacy as a Provider, Morality, Household Management, Intimate Relationships, Intelligence, Sense of Humour, and Global Self-Worth. Reliability coefficients for the subscales ranged from .76 to .91, and factor loading coefficients ranged from .65 to .89 (cross-loadings ranged from .04 to .09) (see Messer & Harter, 1986 for a more detailed overview of the construct validation of the instrument).

In considering the appropriateness of the instrument for application in this study, because of the limitations generated by its clinical focus the complete version of the Adult Self-Perception Profile was deemed inappropriate for use. However, several of the subscale themes devised by Messer and Harter (1986) proved most useful as the basis for the development of several newly created self-concept construct facets in the present study. Most important to the current study was the authors’ development of a self-worth measure of the student, believing that “by measuring self-worth independently of competence/adequacy judgments we can address the relationship between self-worth and domain-specific self-perceptions” (Messer & Harter, 1986, p. 2). Earlier research by Harter (1986a) had shown that this relation is mediated by the importance or the salience of the specific domains. Based on the premise of William James (1892/1963), who postulated that one’s overall self-esteem represented the ratio of one’s successes to one’s pretensions, the authors posited that “if one is successful in domains deemed important, the individual will possess high self-esteem. Conversely, if one is not successful in areas where one aspires to be competent, the result will be low self-esteem” (Messer & Harter, 1986, p. 2). Further, the authors also attempted to measure the impact of opinions by significant others (e.g. family, close friends) regarding the individual’s self-worth,
based on the premise by Cooley (1902) that the self was a social construction, representing the incorporation of attitudes which one feels significant others hold toward the self. Hence for purposes of the present investigation it was considered important to examine the multifaceted aspects of self-concept to describe self-worth, and to utilise significant others' ratings of student self-concepts to more fully test the nature of self-concept for the participants.

**Dimensions of Self-Concept forms (DOSC).** Researchers Crowder and Michael (1989) constructed an experimental test form to measure the self-concept of adults in the workplace. They based their research on the work of Michael, Denny, Knapp-Lee and Michael (1984), which originally addressed the area of student academic self-concept. A number of researchers have tested the construct validity of the DOSC forms. For example, Caracosta and Michael (1986) found that the construct and concurrent validity of the five sub-scales of the Dimensions of Self Concept Scale Form H remained independent of the six subtests from the Intellectual Achievement Responsibility Questionnaire (i.e. a unidimensional locus of control measure). Villar, Michael and Gribbons (1995) examined the construct validity of a parallel Portuguese version of the H form finding that exploratory and confirmatory factor analyses supported the construct validity for each of the five subscales, which corresponded to their hypothesized constructs. Internal consistency estimates of the reliability of all five subscales in both studies ranged between .80 and .86.

Of greater relevance to this study is the Dimensions of Self Concept Scale Form W (Crowder & Michael, 1989), a multifaceted self-concept instrument designed primarily for industrial and business use. The key assumption made by the authors was that the “motivational features underlying learning and achievement in the school college settings do not differ appreciably from the motivational characteristics central to job performance and achievement for adults in employment situations” (Crowder & Michael, 1989, p. 20). This version of the DOSC instrument consisted of the following six, 30-item factor scales: Level of Aspiration, Anxiety, Job Interest and Satisfaction, Leadership and Initiative, Identification versus Alienation, and Job Stress. Reliability coefficient alpha values for the six scales ranged between .84 and .91, however exploratory factor analysis revealed that only four of the factors loaded cleanly (i.e. Anxiety, Job Interest and Satisfaction,
Leadership and Initiative, and Identification versus Alienation) and a fusion of the two remaining factors (i.e. Level of Aspiration and Job Stress) was required. Although the self-concept forms developed by Crowder and Michael have been sufficiently validated (see Villar et al., 1995), the workplace focus of the instrument was inappropriate for the objectives of the present investigation. However, the implications resulting from their work with mature-age, working adults have provided some insight and direction for the development of the subscales of the instrument to be used in the current study.

**Application Problems and Non-Localised Instruments**

All instrument types appear to have their own specific sets of problems apart from limitations of a general nature. Some instruments require very stringent and specific processes for application, and most often demand an extensive knowledge of the philosophy and systems on which the instruments are based. When large numbers of individuals are involved in the research procedure, complex instruments require extensive training and supervision, leaving the research undertaking vulnerable to a diverse range of application errors. Another aspect of application practice that generates some concern for researchers relates to the multiple use of the same instrument in a test-retest program. Pascarella and Smart (1991) suggest that some researchers suspect the application of the same instrument on a number of occasions may lead to internal and external validity problems resulting from a Hawthorne effect. Yet the authors have produced substantial evidence to suggest that applying the same instrument on several test occasions reduces the threat of test-retest effects (Pascarella & Smart, 1991).

A major theme to emerge from the literature regarding instrument design and application is the view established by Castaneda and Winer (1985; see also Waggener & Smith, 1993). They suggest that past studies are most often institutionally bound and thereby limit the direct application of models and instruments (Castaneda & Winer, 1985). Further, Wylie (1974, 1979) suggests that self-concept research is plagued by the misuse of established instruments of measurement, having been developed for one special population and unwittingly applied to another without any consideration of psychometric integrity. Wylie
purports that researchers cannot assume that the interpretation of all questionnaire items and the conceptual structure of the underlying constructs of the instrument are equivalent for two populations. Psychometric developments have generated a more enlightened attitude toward the use of existing instruments, where it is now viewed as essential for researchers to test for the construct validity of a measuring instrument for groups that were not used in the instrument development process (Byrne, 1996). Hence an important aspect of the research undertaking is to ensure that instrumentation is developed according to the specific needs of the target population.

The Relationship of Self-Concepts to Student Persistence Patterns

Issues regarding the various factors that may cause a student to withdraw from their program of study were presented in Chapter 2. The following discussion focuses on student self-concepts and the relation of the construct to student persistence behaviour. Marsh and Yeung (1997, p. 50) recognised that self-concept should be viewed “not only as an important outcome variable in its own right but also as a mediating variable that facilitates the attainment of other desirable outcomes.” Research in higher education settings has in the main focused on measurements of the changes to student self-concept that are a result of myriad situations or circumstances that may impact on the student. For example, Hesse-Biber and Marino (1991) investigated self-concept changes and the subsequent impact on eating disorders during the periods of transition from high school to the college freshman year, and the sophomore year to senior college. Several researchers investigated academic stress among college students and the impact on levels of self-esteem (Abouerie, 1994) and self-concept (Michie, Glachan & Bray, 2001). Worrell (2000) examined the relation between self-concept and numerous variables measuring behavioural and psychological functioning aspects of students.

The current study investigates the relation of mature-age student self-concept constructs to persistence behaviour. Despite early indications of the relevance of self-concept to student persistence patterns (Myers, 1982; Miville & Sedlacek, 1991), issues relating to attrition figure far less in self-concept literature and even lesser still regarding the construct’s predictive value of non-persistence. Further, those reports that appear in the literature regarding the predictive value of self-concept measures
of persistence behaviour are conflicting (House, 1992). For example, Martel and Richman (1985) found no statistically significant relations between self-concept and persistence, and Pascarella (1985) in his study of 487 U.S. colleges and universities demonstrated non-significant relations between students’ ratings of academic self-confidence and subsequent persistence outcomes. Worrell (2000) found that although a relationship did exist between the construct and non-persistence, it was only found for students identified as at-risk. A 1992 four-year longitudinal study of college students (N = 2,544) by House (1993) found that the most significant predictor of college withdrawal was the students’ self-concept of their overall academic ability.

There is a belief among educational researchers that simply asking the student whether they believe they will or will not persist in their studies is a stronger predictor of persistence than self-concept or any other measures. In Chapter 2, the model of student attrition applied by Bean (1982) has also identified this measure as a potential predictor of persistence patterns. However, a number of researchers have included both the self-prediction and self-concept variables in their causation models of attrition and found conflicting outcomes. For example, a study by House (1992, p. 8) investigated various university student (N = 2,324) ratings of their expectations of course completion and found that the expectation ratings of “Get bachelors degree” were not significantly related to persistence outcomes at either the fourth or eighth semester measures of student persistence status. The author later reported that the academic self-concept measure was a more cogent predictor of persistence than were the student’s stated academic expectancies (House, 1993). In regard to intervention studies where comparisons are made between treatment and control group outcomes, student expectations of course completion have also failed to predict persistence. For example, a study by Tinto and Love (1995) examined the circumstances of students (N = 2,061) participating in a Learning Community program (i.e. a program where students received an intervention of structured student and faculty support). Ratings of significantly higher student expectations of persistence for the treatment group produced attrition rates similar to the general student population (Tinto & Love, 1995).

Researchers have often attributed indirect effects of increased student retention to improved self-concepts. For example, in their investigation of the extent
to which the first-semester grades of freshmen college students \( N = 1,290 \) affected their self-concepts (among other variables), Bank and Biddle (1994) established that initial grades had significant positive effects on students' self-concepts which resulted in improved persistence behaviour. The authors concluded that the self-concept outcomes were one of the strongest predictors of persistence to emanate from their research (Bank & Biddle, 1994). The complexity of self-concept research in attrition may be the very reason for the lack of research in this regard, or at the very least, a possible explanation for the continued use by researchers of unidimensional measures of the construct in self-concept related studies (Byrne, 1996). With the demands of psychometric integrity regarding its methods of application, research procedure and analyses, and despite the evidence of the constructs hierarchical and multidimensional nature, contemporary researchers continue to devise research models that employ a unidimensional approach and thereby do not appropriately focus on a multidimensional examination of the construct (see for example: Fink, 2000; Katzko, Steverink, Dittmann-Kohli & Herrera, 1998). The single factor “global” or “general” self-concept outcome that continues to be applied and reported in the literature is said to be the result of the previous absence of strong statistical analyses capable of measuring the multidimensionality of the construct (e.g. confirmatory factor analysis) and an historical dominance of the single factor outcome in the research (Byrne, 1996). Hence although the above discussion suggests support for the notion that improved self-concepts lead to increased student retention rates, and that self-concept ratings may therefore be considered reliable predictors of student persistence, these are outcomes typically generated from the use of a single “global” measure of self-concept in past attrition research. The multidimensional nature of the current study together with the utilisation of the latest advances in self-concept theory and research provides the opportunity to now clarify the relation of self-concept and student attrition.

**Mature-Age Student Self-Concept**

This chapter has thus far examined the multidimensionality and hierarchical nature of self-concept, the models on which the construct is based, and the relation of self-concepts to student attrition patterns. An issue of concern common to each of
these aspects is the childhood to young adult populations to which most previous research has been addressed. The following discussion explores the implications of self-concept and attrition research regarding a mature-age student population.

*Mature-Age Student Self-Concept, Attrition and Life Stages of Development*

Branden (1994) provides an insightful summation of the relevance of self-concept to contemporary adult life:

I cannot think of a single psychological problem – from anxiety to depression, to under-achievement at school or at work, to fear of intimacy, happiness or success, to alcohol or drug abuse, to spouse battering or child molestation, to co-dependency and sexual disorders, to passivity and chronic aimlessness, to suicide and crimes of violence—that is not traceable, at least in part, to the problem of deficient self-esteem (p. xv).

This statement by Branden is reflected in many studies of self-concept, particularly those studies that are based in the exploration of the self-concept of children and older adolescents in an education setting. The current study investigates the relevance and relation of self-concept constructs to mature-age student retention, and although the philosophy espoused by Branden clearly connects the weight and impact of the construct to adult living, much of the research of self-concept in education seems to drop off dramatically following early adulthood. Research is particularly sparse regarding the implications of self-concept for mature-age students and the relation of the construct to attrition.

*Attrition/self-concept research population issues.* Much of the research in attrition studies has largely focused on full-time two-year college student, and to a much lesser degree the full-time four-year university students, who comprise research populations that generally span the human developmental stages of older adolescence to young adulthood (Cleveland-Innes, 1994). Most self-concept research related to persistence studies focus on academic self-concept for these same populations (Reynolds, 1988). Participants in the current research attended part-time
study programs offered by TAFE and are generally adults of all ages. In contrast, populations in previous attrition research are typically much less diverse. Therefore the issue of replicating past research models and making comparisons of research outcomes requires that caution must be exercised regarding interpretations of any comparative analyses (see Chapter 2 for a more detailed discussion of this issue).

**Self-concept differentiation through the life stages.** Shavelson et al. (1976) suggest that self-concepts change in their structure and levels as an individual grows. Wylie (1979) reported that research using global self-concept scores identified only small and inconsistent changes in self-concept levels throughout the developmental years. Marsh (1989) reported that there exists a consistent reduction in self-concept levels from childhood through to adolescence, where self-concept stabilises and then increases during early adulthood. Byrne (1996) suggests that a good self-concept, and its relation to achievement, self-actualisation and self-acceptance, should be viewed as a worthy goal at any stage in life. It is a critical aspect of self-concept measurement to recognise that the construct becomes increasingly differentiated with age (Shavelson et al., 1976), and that this differentiation follows the developmental stages through childhood, adolescence and early adulthood. It is also clear that attaining and maintaining a high self-concept is considered a valuable objective throughout the life stages (Byrne, 1996), and that the construct acts as mediating variable regarding diverse outcomes for the individual (Marsh & Yeung, 1997). The absence of educationally oriented self-concept research regarding a large population of mature-age adult students would suggest, however, that this differentiation is perceived to finalise (or at the very least, stabilise) following early adulthood. Of the few studies that have been undertaken in this regard, student self-esteem has been found to positively correlate with age (Woodard & Suddick, 1992). Hence, we know very little about the structure and nature of self-concept for mature-age part-time students, and the relation of self-concepts to attrition for adults.

**Summary**

This chapter has shown that historically self-concept research was focused on achieving a global and all-encompassing unidimensional measure of the construct which lacked a theoretical base required for the development of quality instruments.
to interpret its construct validity. With the advent of the Shavelson et al. (1976) multidimensional model of self-concept, and the subsequent revisions to the model developed by Marsh (1987b) and others (see Marsh, Byrne & Shavelson, 1988; Marsh & Shavelson, 1985; Shavelson & Marsh, 1986) along with the development of multidimensional measurement instruments, the previous inadequacies common to self-concept theory and research are being addressed by the use of a theoretical model as the basis for testing hypotheses, a multidimensional approach to the study of self-concept, and reliable instruments with demonstrated sound psychometric properties. The current study capitalises on recent advances in self-concept theory and research by grounding the study on a multidimensional model of self-concept, utilising multidimensional self-concept instruments and examining the results within the framework of a multidimensional model of self-concept. The current study also aims to extend advances in self-concept theory and research to more fully explore the nature and structure of self-concept for adults and the relation of the self-concept construct to attrition in the TAFE setting.

In the following chapter, the interventions borrowed from many disciplines to generate the strategies for the current study are examined.
CHAPTER 4

SELF-CONCEPT ENHANCEMENT AND ATTRITION REDUCTION APPROACHES FOR MATURE-AGE STUDENT RETENTION

Introduction

The primary purpose of this chapter is to discuss recent advances in self-concept enhancement research and attrition intervention of relevance to the present investigation. Firstly, an overview of research demonstrating the relation of self-concept to other desirable educational outcomes is discussed. Secondly, problems and limitations inherent in previous self-concept research are examined along with recent advances in self-concept enhancement research methodology and the implications of these findings for the present investigation. Finally an overview is provided of attrition intervention research in order to identify strategies identified as successful for emulation in the present investigation.

The Relation of Self-Concept to Other Desirable Outcomes

Research regarding student attrition and the influence of self-concept enhancement as an intervention are rare, and of the few studies that do address these issues, research outcomes are typically conflicting. For example, some studies have shown that by simply attending a developmental program (an intervention designed to improve basic literary skills) will result in the improvement of student’s self-concept and academic achievement (Van-Shelhamer & Waters, 1988), yet others have found such developmental program intervention designs have little impact on either self-concept or academic achievement (Fortson, 1997; Hilts, 1991). Further, while early self-concept/attrition research tended to postulate that developmental programs should first impact on student self-concept before the programs intended influences are realised (i.e. improved academic achievement/persistence)
developmental programs are primarily designed to increase the academic capability of the student. Hence adequate attention to self-concept enhancement has not been a focus in intervention designs aimed at reducing attrition. Interventions that treat self-concept as an intervening variable tend to employ self-concept enhancement strategies as a component of the intervention. For example, an early self-concept/attrition study by Clark (1982) established that adult basic and general education college students have low self-concepts and unrealistic career aspirations which inevitably result in the withdrawal of the student. To address this finding, the author suggested that interventions needed to be designed to build positive self-concepts by utilising self-concept enhancement strategies, while simultaneously attending to the development of more appropriate career expectations by the student (Clarke, 1982). Findings of earlier self-concept/attrition research by Myers (1982, p. 152) prompted the authors to propose that because student demographic, background and academic factors failed to predict persistence, “future researchers exploring student retention in technological colleges and universities should focus their attention on non-academic variables”.

**Enhancement of Self-Concept**

Self-concept has been defined in the attrition literature as the description an individual attaches to him or herself (Beane & Lipka, 1984). Self-concept is used as a generic term (Shavelson, Hubner & Stanton, 1976) that encompasses phrases such as “self-perception” (i.e. how an individual perceives him or herself), and “self-esteem” (i.e. the evaluation that one makes of the self-concept based on value indicators; see Chapter 3). According to Beane and Lipka (1984), to enhance self-concept therefore means to do one or more of the following:

1. Help clarify or sharpen the content of the description;
2. Help individuals develop an accurate self-description;
3. Suggest new dimensions that might be added to the description;
4. Encourage self-descriptions that are based on reality;
5. Encourage individuals to think in-depth about their self-concept;
6. Help individuals see themselves as others see them;
7. Encourage individuals to continually reflect upon their self-description in terms of clarity, accuracy, breadth and depth;

8. Help individuals discover the sources of and influences upon the self-concept, the dimension(s) with which they are unhappy, and assist in the improvement of those dimension(s); and

9. Encourage individuals to develop a sense of their own personal worth and to think of themselves in positive terms.

The main thrust of the above criteria is that self-concept enhancement requires the student to see, reflect, think in-depth, clarify, sharpen and extend their perceptions of self-concept to enable the individual to improve their sense of personal worth. Following almost a decade of examining self-concept research outcomes, Craven, Marsh and Burnett (2003, p. 92) report that enhancing the construct across the life span is recognised internationally as a highly desirable goal in diverse settings ranging from the pre-school classroom to the retirement village, and that “The development of a positive self-concept is prized as a desirable outcome in and of itself as well as a mediator of an array of valued outcomes including enhanced educational and career aspirations, increased adoption of adaptive striving behaviours, and improved achievement/performance in educational and work settings.” Researchers argue that self-concept should be relatively stable over time (Marsh, 1987b), but to enhance self-concept suggests that one seeks to improve, augment or enrich the construct, and therefore achieve varying degrees of change to the individual’s self-concept. Marsh and Peart (1988) suggest that much of the interest in self-concept often stems from the attempt to change self-concept, however, well-controlled interventions have not typically affected self-concept despite the many possible biases (e.g. such as placebo and Hawthorne effects, acquiescence to the experimenter, and post-group euphoria) that would be expected to produce changes in self-concept responses (Hattie, 1992; Craven, Marsh & Burnett, 2003). Significant outcomes from many early self-concept enhancement studies were seen to be temporary and likely to dissipate over time (Marsh, Richards & Barnes, 1986a; 1986b). Adult career transition classes provide a demonstration of the effects outlined above and the possible misinterpretation of intervention outcomes that might result. Gilkison and Drummond (1988) investigated the academic self-concept of mature-aged students (aged 50+ years) who were in career
transition. The authors found that overall, and contrary to commonly held notions of the mature-age person in this situation, students had extremely positive self-concepts regarding perceptions of their academic abilities in the learning environment (Gilkison & Drummond, 1988). Experienced teachers of mature-age students attending career transition classes often attest to utilising a teaching strategy to encourage student positive perceptions. This is generally achieved by using positive feedback to reinforce students’ academic capability facilitated by training materials that contain a low level of academic content (Cooper, 1977). Experienced transition teachers will often report that during transition classes an intense group euphoria develops that quickly dissipates following the conclusion of the program.

Previous research has found that self-concept is stable over time; hence enhancing self-concept is a difficult task. However, the fact that a number of successful interventions have been implemented suggests that the construct is amenable to change. For example, Parish and Parish (1991) investigated the extent to which college professors and their students behaved relative to their own self-concepts and to their concepts of each other. They found that both groups acted upon one another as they perceived they were being acted upon, attempting to be consistent with themselves as well as with their counterparts. Most self-concept researchers would accept the notion that there exists a certain flexibility to the construct and that these manipulations of self-perceptions by the individual are far from being fully understood. However, longitudinal studies of self-concept (e.g. Marsh, Richards & Barnes, 1986b) have shown that self-concept improvements can be maintained over long periods of time. Though Hattie (1992, p. 236) concluded from the outcomes of his meta-analysis that the effects size of the self-concept interventions examined were significantly reduced when a delayed post-test was applied to interventions, and that “there were too many fair and poor studies, too many studies were rejected because they evaluated programs by intuition, too few studies with follow-ups, and too few studies that included control groups.”

Byrne (1984) reviewed academic intervention studies that attempted to improve self-concept as a means of improving academic achievement. It was found that null results predominated, and that most of the interventions failed to alter either self-concept or academic achievement. Similarly, Wylie (1979) reviewed studies of
the effects of psychotherapy and growth-producing group experiences on self-concept, reporting that almost without exception, null result outcomes were achieved. Hattie (1986) conducted a meta-analysis of pre-1983 self-concept enhancement studies and concluded from the data that self-concept can be enhanced. However, the author cautioned that the studies investigated were of poor quality and were conducted during a period (1970’s to the 1980’s) where the focus of research was on the empirical relation of self-concepts with other variables, and to a much lesser degree, to the theoretical development of the construct or enhancement process (Hattie, 1992). In 1992, Hattie reported the outcomes of a further meta-analysis of self-concept programs that investigated whether cognitive type programs produced a more positive enhancement effect on self-concept change than did affectively oriented programs. From a potential 650 studies, only 89 had sufficient data to be included in the meta-analysis, causing the author to suggest that the rejection of so many studies was a clear “reflection of the quality of research conducted in the area of self-concept change” (Hattie, 1992, p. 227). Hattie used a measure of association (eta-squared) to transform the most important variables from each study to effects coding (see Cohen & Cohen, 1975, pp. 188-195). Regression analysis produced 485 effect sizes from the 89 studies, resulting in a mean effect size of 0.37 ($SD = 0.12$). Hattie concluded from the outcomes that only 10% of those who were exposed to an intervention increased their self-concept in comparison to control groups (1992, p. 227). Higher effect sizes were identified for adults ($z = 0.52$) than children ($z = 0.31$), with the highest average effect size of all being adults with previously diagnosed problems ($z = 0.87$; see Hattie, 1992, pp. 228-230). Interestingly, although a large majority of the 89 studies examined were conducted by teachers, a substantially lower than average effect size ($z = 0.26$) questions the effectiveness of teachers as self-concept change agents (Hattie, 1992; see Chapter 6 for further discussion regarding teacher participation in the current research). A final implication of Hattie’s meta-analysis suggests that because control groups in his study indicated some self-concept change ($z = 0.12$), the influence of Hawthorne and test-retest effects in studies achieving small effect size outcomes could not be ruled out.

A later meta-analysis by Haney and Durlak (1998) of 116 pre-1992 self-concept/self-esteem intervention studies was conducted to determine whether interventions lead to significant improvement in self-concept, the factors that
moderate outcomes, and whether improvements in self-concept are associated with other desirable outcomes. Studies were classified on the basis of the methodology employed, theoretical basis, general features of the study, and characteristics of the participants. Interventions were categorised as either studies that focused on enhancing self-concept or as studies that had another major focus but included a self-concept measure. Major outcomes from the Haney and Durlak (1998) study were: The mean effect size for studies that focused on enhancing self-concept was significantly higher (.57, p < .01) than the mean effect size from studies focusing on other outcomes (.10); effect size was larger for studies that employed a treatment approach (.47) than a preventative design (.09); studies with no treatment control groups had significantly higher effect sizes (.34) than studies that did (.10); and non-randomised designs resulted in significantly lower effect size (.04) than randomised studies (.38). Further, and from a theoretical perspective, Haney and Durlak (1998) found that interventions which were developed based on prior research findings produced the highest effect size of .71, followed by a specific self-concept (.43), other theoretical postulates (.53), another rationale (.26), or no rationale at all (.11). Haney and Durlak (1998, p. 429) concluded from their study that it was possible to significantly improve an individual's self-concept/self-esteem and to “obtain concomitant positive changes in other areas of adjustment”, but cautioned that significant improvements in self-concept are unlikely unless interventions focus on self-concept. Craven et al. (2003) assert that this meta-analysis provides substantive direction for researchers in that self-concept enhancement program outcomes can be maximised by employing randomised designs, capitalising on previous research findings and theory to develop interventions, and targeting particular categories of students who are most likely to benefit from a self-concept enhancement intervention.

Reviews of self-concept enhancement literature prior to the 90's have consistently identified the poor quality of research as resulting in contradictory findings. Methodological flaws identified for this period of self-concept research include the application of weak interventions, the use of potentially powerful interventions applied with small sample sizes or weak designs so that effects derived from the interventions are unlikely to be statistically significant, and a poor fit between the intended goals of the intervention and the specific dimensions of self-
concept used to evaluate those interventions (Hattie, 1992; Hattie & Marsh, 1996; Marsh & Craven, 1997; Marsh & Richards, 1988). As discussed in the previous chapter, the development of the multidimensional and hierarchical model of self-concept by Shavelson, Hubner and Stanton (1976), and the subsequent revisions to the model by Marsh and Shavelson (1985), had revolutionised self-concept research. The development of the Self Descriptive Questionnaire (SDQ) instruments by Marsh (1990c, 1992) made possible the effective measurement of the multidimensional facets of the construct, so much so, that continuing and recent reviews (Marsh, Byrne & Shavelson, 1988; Hattie, 1992; Byrne, 1996; Marsh & Craven, 1997) support the multifaceted structure of self-concept and argue that the construct cannot be adequately understood if its multidimensionality is ignored.

**Guidelines for Self-Concept Enhancement Research**

Based on analysis of historical pitfalls and recent advances in self-concept theory, measurement and research, Craven, Marsh and Burnett (2003) have developed a set of guidelines designed to achieve a more effective approach to self-concept enhancement research. Craven et al. refer to the guidelines as a blueprint for the next generation of self-concept intervention research, and are described as follows:

1. *Utilise the strongest available self-concept theory as a basis of designing self-concept enhancement studies.* The researchers advocate the Shavelson et al. (1976) model, and the Marsh and Shavelson (1985) revision of the model, to be the best available structural theory.

2. *Employ measurement instruments that account for the multidimensionality of self-concept* and demonstrate the reliability and validity of the self-concept instruments employed. The researchers suggest that tests of reliability and validity should be carried out on the sample population being investigated and not reported from test manuals, especially for instruments that have been modified or when the investigation targets a new sample population, and preferably by utilising CFA approaches.

3. *Devise and implement potentially powerful interventions* that can be justified in the context of previous theory and research as opposed to ad hoc idiosyncratic interventions. The researchers suggest that internally focused feedback for
example, has been identified as a potentially potent strategy deserving of further research.

4. **Capitalise on the strongest available research methodology** by (a) utilising adequate sample sizes that allow for the strongest statistical tools (e.g. SEM, see Joreskog & Sorbom, 1993), (b) focusing interventions on specific facets of self-concept and stating hypotheses and their associated rationales in sufficient detail to identify and justify target, transfer and non-target self-concept facets and other outcomes, (c) employ a construct validity approach to the study of intervention effects, and (d) ensure that in studies where possible, employ a longitudinal design and include a long-term follow-up test of intervention effects.

5. **Capitalise on the implications of the results of causal modelling studies** by designing interventions to enhance both self-concept and desirable outcomes as implied in the reciprocal effects model in studies that aim to produce long-lasting effects of the intervention.

Finally, Craven et al. (2003) recommend two other guidelines for self-concept enhancement interventions. Firstly, because teachers have been identified as the least likely to enhance self-concept (Hattie, 1992), it would be necessary to ensure that adequate training in self-concept theory be provided for those involved in any self-concept enhancement intervention. Secondly, designing interventions to be administered in naturalistic settings is a desirable goal since this is the target setting for the intervention. Appropriate guidelines regarding the interventions that are the focus of the current study have now been identified.

**Implications for the Present Study**

The present investigation was designed to avoid many of the methodological problems plaguing earlier self-concept research by employing a large-sample size, utilizing multidimensional self-concept instruments with demonstrated reliability and validity, basing the study on a multidimensional theory of self-concept and employing an empirically validated self-concept instrument, using a construct validity approach to study the effects of the intervention, and employing powerful statistical tests. The self-concept enhancement strategies outlined by Beane and
Lipka (1984) also provided direction in the design of interventions to be applied in the current study. To date, few enhancement studies (see Craven, 1989; Craven, Marsh & Debus, 1991; Marsh, Richards & Barnes, 1986a; 1986b; Marsh & Richards, 1988) have employed the latest advances in self-concept theory and research. Hence the present investigation was designed to contribute and advance this literature by determining the nature and structure of self-concept for mature-age TAFE students, employing a self-concept enhancement intervention according guidelines established by Craven et al. (2003), and ascertaining the impact of the latter on attrition.

**Existing Student Services at the Location of the Present Research**

As part of the typical marketing strategy, many institutions of higher education boast that they provide exceptional services and facilities of world-class standards for their students. Because the student facilities and services already in operation at the location of the current research undertaking form part of the research protocol for the study, to simply say that the college's existing provisions meet world-class standards would be insufficient evidence of their quality, role, or potential impact in the current research. As part of the experimental intervention, students may be referred to or encouraged to utilise these facilities and services. It is therefore necessary to establish the saliency of each of the existing strategies as part of the overall study by examining the programs and their relation to student retention according to evaluations from past attrition literature. Strategies specifically designed for the experimental intervention are addressed later in the chapter.

**Intervention versus Prevention**

Attempts to improve attrition rates for increasing numbers of inadequately prepared higher education students requires an extensive variety of strategies (Roueche & Roueche, 1993), and these can be broadly classified into either preventative and intervention measures. Over the last two decades, researchers have increasingly focused on preventative oriented strategies suggesting that they have proven reasonably successful in arresting an increasing attrition rate (e.g. Kember, 1995; Smith, 1986). Roueche (1982) for example, demonstrates the preventative measures designed to impact on student withdrawal behaviour, including prohibiting
full-time enrolment by working students, pre-assessing new students' entry-level skills, using assessment data for proper placement in appropriate-level courses, and educational institutions subscribing to a “right-to-succeed” policy where time-frame descriptions are included in course program catalogues. Of the aforementioned strategies, the regulation of students' entry-level skills has possibly been the most utilised form of prevention used by institutions to address student attrition. The following study provides examples of typical preventative strategies in course entry regulation.

As a result of the examination of the entry criteria into past general college chemistry courses, and to ensure the best outcomes regarding student completion rates, researchers recommended that course placement criteria include a GPA of at least 2.0, a previous course completion ratio of at least 73 percent, previous math experience at least to the level of intermediate algebra, and recent successful completion of an introductory chemistry course or equivalent (Sollimo, 1988). Another popular preventative strategy that was identified very early in attrition research and still very much part of higher education student acquisition strategies today, is the pursuing of new students with proven academic achievement. Baker (1986) identified that “recent high school graduate” enrolments at colleges result in higher retention outcomes, and recommended that institutions should actively pursue this group and encourage their enrolment. Preventative measures to improve attrition outcomes are therefore generally based on determining a set of stringent academic entry criteria and the targeting of students who are considered to be low-risk for enrolment. The far greater majority of attrition studies focus on interventions, and these typically comprise counselling or education based strategies to enhance various aspects of academic achievement and student self-esteem. The following sections address the counselling and education based services provided by the college in the present study, and examines attrition literature regarding their effectiveness as intervention strategies.

*Counselling Interventions*

Two decades ago, Louis-Seashore (1984) found that most college dropouts never receive counselling or any other intervention concerning their withdrawal.
Counselling interventions, voluntary or otherwise, are typically thought of as strategies to be employed prior to or during the early stages of the student's career. Counselling interventions often include: pre-enrolment entry and exit interviews; advice regarding further education, subject selection, careers, and goals; and dealing with the students' emotional issues relating to the institution or the course of study (Baker & Schultz, 1993; Doyle, 1989). Seidman (1991) utilised Tinto’s model of attrition (see Chapter 2 for an overview of the model) as the basis for the design of an integrated admissions and counselling program. Students underwent a series of meetings with a counsellor, including pre-admission, program planning, and post registration sessions. Counsellors then reviewed students' study programs, transcripts, test scores, and recommendations to gain greater insight regarding the student's goals, aspirations, and academic potential. In applying the Tinto philosophy, students were then encouraged to introduce themselves to their faculty members, and to participate in both curricular and extra-curricular activities. Results indicated that although first semester retention rates were not significantly different between the treatment and control group, the counselled group achieved significantly higher third-semester retention of 88%, compared to 68% retention for the control group (Seidman, 1991). In addition, the counselling intervention literature also suggests that counselling interventions can be effectively applied at any point in the student's career (Schwitzer et al., 1993).

An intervention program referred to as Cooling Out was the subject of an investigation by Kaliszeski (1988). Cooling Out is defined as a set of counselling strategies designed to assist students having unrealistic aspirations in selecting alternative career goals that would be more in line with their abilities. According to Kaliszeski, the program encompassed pre-entrance placement testing and/or advising, mandatory or voluntary placement into one or more remedial courses, placement on academic warning and/or probation, and complete withdrawal from the institution or changing initial major to an alternative program which is perceived as being less rigorous and/or associated with less status. Kaliszeski reported that a statistically significant relation (p ≤ .05) was established between graduation rates and those students who had taken part in the Cooling Out program. Hence the diversity of counselling intervention outcomes appears to produce positive improvements in student retention rates.


Educational Intervention Programs

The college that is the focus of the current research employs enhancement strategies that include developmental and remedial classes for students. The facility (in keeping with the policy of the larger state-wide body) believes such educational strategies promote student academic success and foster student persistence. In other words, positive student outcomes are likely to be reciprocal, whereby enhancing student achievement leads to increased student retention, and increased student retention should lead to enhanced student academic achievement. What follows is an overview of the attrition literature that investigates the impact of education based interventions.

Pre-course development programs. Over the last two decades, a number of attrition researchers have focused on pre-course interventions and found that although low grades contribute to non-persistence outcomes, retention rates can be substantially improved by incorporating the student into a variety of educationally based interventions, such as: Appropriate course placement (Hodges, 1982); basic skills instruction (Gabe, 1989); and criterion-based testing and grading of student assessments (Doyle, 1989). Some research suggests that students whose entry into higher education is dependant on their attendance and satisfactory completion of developmental classes prior to course enrolment eventually achieve the same persistence rates and academic outcomes similar to that of the general student population (Walleri, 1987). Studies have also shown that those who received unsatisfactory grades in their developmental classes were more likely to dropout and that the developmental students who eventually graduate received satisfactory grades in their developmental course work (Suter, 1983). However, a substantial body of research demonstrates conflicting results. For example, various researchers have contended that academic achievement does not positively impact on student attrition for minorities or the general student population for full-time students (Puyear, 1989) or part-time students (Rudmann, 1992). Thus pre-course developmental programs have produced contrasting outcomes regarding their impact on student retention rates.
**Basic education preparation programs.** Two longitudinal studies (see Morris, 1994; Gabe, 1989) that investigated the impact of college preparatory instruction interventions for college students exhibiting one to three areas of academic deficiency achieved similar results. Morris (1994) compared persistence and graduation rates for students who at enrolment undertook a college placement test, and depending on their outcome scores, were offered preparation classes across three skill areas to students who had not undertaken such courses. The study found that combined persistence and graduation rates among students were highest for students who successfully completed three college preparation classes (85.7%), followed by those who passed two preparation classes (77.4%), those who passed one class (62.4%), and smallest for those who neither took or passed any college preparation classes (35.6%). Gabe (1989) also found that when persistence after three years was examined for the effects of the college placement test and the attendance of students at preparation classes, graduation rates had increased and overall non-persistence had decreased for students’ participating in preparatory classes compared to students who had not participated in such classes. Almost a decade later, the results of a five-year longitudinal study identified that the 5-year success rate (i.e. graduation or GPA of 2.00 or better) for students who were deficient in three areas of academic skills and had not completed any college preparatory classes, was 33% (Morris, 1994). Hence taken together these longitudinal studies offer strong support for preparation classes as a means to enhance persistence and graduation rates.

**Remediation program interventions.** The variations in remedial program style interventions are typically in the method by which programs are delivered. Delivery methods include class-based strategies (Kangas, 1992, Hennessey et al., 1990), seminar type programs (Johnson, 1995), and short-duration vacation bridging programs (Buck, 1985; Ackermann, 1989). However, these programs tend to have the same goal whereby they seek to improve academic achievement in order to achieve improved student retention rates. For example, the Gateway U program (Kangas, 1992) employs the following strategies for beginning university students identified for remedial intervention: weekly surveys of participating students during the first 4 weeks of class to determine if students understood their assignments, and if they wanted to see a tutor, talk with the instructor, or study with other students; a program assistant who immediately contacted students identified as having difficulty;
block scheduling of reading, writing, and math classes; student study groups; and assistance for students on visits to student services offices. Kangas (1992) found that students who had participated in the Gateway program compared to students who had not participated in this intervention achieved a higher persistence rate (72%), compared to a 53% retention rate for the control group.

A number of researchers have also suggested that college level remediation programs are generally unsatisfactory on the basis that, because they are usually non-credit programs, students tend to treat them as low priority (Harding, 1981), and that a realistic evaluation of the retention rates achieved by intervention groups are essentially no different to those identified for the general college population (Walleri, 1987). Harding (1981) also cautioned that because students are simultaneously enrolled in regular mainstream courses (which require the skills that they have not yet developed), the student will often fail before the remedial activity can be effective. Other researchers have achieved outcomes from their remediation program designs that were not the intended goal. For example, Ackermann (1989) describes a Transfer Summer Program that was structured to academically prepare college transfer students. Ackermann reported that students rated the fulfilment of the programs’ academic goals (i.e. aiding academic adjustment and increasing control over their academic future) lower than its non-academic goals (i.e. increasing self-confidence and aiding in the social and cultural adjustment to the institution). Thus an examination of the research regarding the impact of remedial program interventions on student persistence has produced conflicting outcomes.

*English as a Second Language (ESL) programs.* One area of concern regarding the present study was the proportion of students who had English as their second language participating in the study. Morse and Hammer (1998) suggest that the basic steps of completing high school with adequate college preparation, applying to college and being accepted, obtaining financial aid, and progressing through college to graduation are complicated for the migrant student by frequent moves, poverty, gaps in previous schooling, and language barriers. TAFE provides support for such students, and included in the facility’s basic service provisions are English as a Second Language (ESL) courses, tutorial support and interpreter services. In recent years there has been a significant reduction in the number of
participants enrolled in ESL programs and a subsequent increase in the number of ESL students in mainstream courses. As a result of an open-entry policy regarding standards of English requirements, it appears that many of those who would have otherwise been participants in ESL programs to improve language skills are now choosing to enrol directly into mainstream vocational courses. There is no evidence at a local level to suggest that the direct mainstream course enrolment activity has further impacted on attrition rates, and the literature on student persistence provides no insight regarding clarification of this issue. For example, some researchers contend that ESL students make up the greater proportion of academic remedial class participants (Kangas, 1992) and migrant and non-white students record the highest attrition rate (Rendon, 1995). Yet, Isonio (1994) reports that students at U.S. institutions whose first language was other than English had higher academic success and retention rates than their native English-speaking counterparts. Thus there is no clear evidence that ESL development courses, support programs, or policies that allow direct-entry to mainstream study programs impact significantly on retention rates.

Implications for the Present Study

The review above suggests that early identification of students experiencing difficulty and the provision of structured counselling and remedial action via support and guidance are strategies that are not only likely to enhance college student retention rates, but also impact on the self-confidence and social adjustment of the student to the institution. TAFE’s battery of preventative programs reflect much of what has been identified in the literature as effective retention strategies. For the most part, TAFE utilises a student selection system based on the detailing of very specific entry requirements (i.e. high school outcomes, prior attainment of recognised qualifications and/or years of specific work experience) for each of the 13,091 courses (Statistics newsletter: Enrolment summary 1999-2001, 2002) that they offer. For those study programs that require higher academic capabilities or for courses that are popular and placement is extremely competitive, TAFE employs a process that requires the student to submit an application (which may include personal interviews, auditions etc.) detailing specific aspects of their qualifications and experience.
Counselling facilities at the college for the current research are extensive, with a professionally qualified staff ratio that is appropriately relative to the student population. The counselling facility is reasonably well funded and staff are active in promoting service options to students. Most of the student educational support programs provided by TAFE are intervention-based strategies where services are made available to students following the identification of problems.

An examination of the processes and procedures employed by TAFE suggests that the facility’s programs, for the most part, meet Doyle’s (1989) criteria for an effective set of counselling and education based interventions. The criteria include:

1. An intake interview (or formal written application) to review students' high school records and achievement test scores;
2. Pre-enrolment counselling to clarify program expectations and assess students' attitudes toward college;
3. An assessment of students' basic skills in reading, writing, and mathematics;
4. Courses in math and study skills that are credit-bearing, and paired reading and writing courses;
5. A learning laboratory;
6. An exit interview with a counsellor if students decide to change their curriculum or withdraw from the program; and
7. Competency-based instruction and flexible completion strategies (Doyle, 1989).

**Institutional Retention Management Strategies**

This section of the Chapter investigates the higher education institution that is the location of the current study regarding institutional policy and planning of retention issues. Kozeracki (1998) suggests accelerating changes in the external environment to institutions (e.g. differences in the economy, government relations, the demographics of student populations, and the development of new technologies) have resulted in substantially increased demands for institutions to improve retention rates. Nielsen and Polishook (1984) contend that the under-preparedness of many students in higher education is simply reflective of the institutions which are
themselves under-prepared for the task of handling more than six times the student population they had to cope with in the mid 1940’s. Further, Webb (1993) highlights the added responsibilities for institutions now required to deal with large numbers of non-traditional students gaining access to higher education through open-entry policies. The author purports that although this situation is widely supported both ideologically and pragmatically, the distinctive needs of the non-traditional student population has led to concern about the capacities of institutions and staff to meet the demands of accountability (Webb, 1993).

There exists a diverse range of retention-focused initiatives, and an overview of what Tracy-Mumford (1994) described as the basis from which to build an effective retention plan is presented to demonstrate the extensive nature of the task required of the institution. Retention-focused initiatives include:

1. Creating a vision and committing to that vision;
2. Creating an effective program means understanding what “program completion” is, being able to define and measure retention, and knowing how the program is organised and operated to achieve better retention rates;
3. Effective student support strategies requires establishing rapport, counsel and trust between teacher and student, and helping students develop and sustain through guidance, referral and building on family support;
4. Effective service to students requires high quality and relevant instruction, opportunities for continued success, and tangible evidence of progress;
5. Structural resilience is achieved through effective recruitment, orientation, assessment and placement, student recognition and evaluation, student contact processes, and an instructional delivery system.

There are some aspects of student attrition that can obviously be influenced by an effective institution-based set of interventions (Pitkethly & Prosser, 2001); however there exist others that are beyond the control of most institutions. For example, in his study of 23 community colleges, Puyear (1989) reported that smaller colleges tended to have higher retention and higher rates of productive grades among full- and part-time students than did the larger institutions. Because the location of the current study is considered one of the larger metropolitan colleges, Puyear’s
(1989) findings have substantial implications for the facility's prospects in regard to better management of student retention rates.

**Retention Plans in Higher Education Institutions**

A report of the results of a survey of member institutions of the American Association of State Colleges and Universities (N = 183 institutions) by Cowart-Cooper (1987), suggests that almost all member institutions had implemented retention programs or had been engaged in retention-orientated activities. Other than an increased awareness of attrition by most member institutions, Cowart-Cooper (1987) indicated that the problems faced by institutions in the 1987 report were the same as that which was reported from the 1979 survey. Although it appears that there has developed a gradual increase in general awareness of the cost of attrition (O'Neil, 1993; Marinaccio, 1986), studies of higher education administrators and teaching staff perceptions suggest that there is a substantial gap between theory and practice in the current coordination of retention efforts (O'Neil, 1993). The research shows that to improve retention rates it is essential that institutions involve all stakeholders in their retention plan and turn effective research outcomes into institutional policy (Kinnick & Ricks, 1993). Researchers (e.g. Louis-Seashore, 1984; Seppanen, 1995) have for many decades now asserted that a large proportion of students dropout for reasons unrelated to and beyond the influence of the institution (Pitkethly & Prosser, 2001). However, there are extensive numbers of circumstances of student non-persistence that are amenable to intervention. Tinto (1987, pp. 139-140) has identified six retention principles for institutions to employ in their efforts to enhance student success and progression:

1. Students enter with, or have the opportunity to acquire, the skills needed for academic success;
2. Personal contact with students extends beyond academic life;
3. Retention actions are systematic;
4. Retention programs address students' needs early;
5. Retention programs are student-centred; and
6. Education is the goal of retention programs.
Research suggests that because student affairs professionals are generally left with the task of managing the institution’s commitment to retention, their focus on student life and their lack of knowledge regarding the extent and causes of the attrition problem in higher education (Evans, 1988; Tinto, 1990) continues to serve to keep attrition at extremely high levels. Hodum and Martin (1994) report that when an institution focuses on improved programs and services that contribute to student satisfaction and success, students are more satisfied and remain in college longer. Catalano and Eddy (1993), who undertook a U.S. nationwide study of 263 higher education facilities that conducted nursing degree accredited courses, argue that retention programs are generally designed to improve the institutions programs and services, which ultimately impact on student satisfaction and success. The authors report that facilities with college retention programs had a statistically significant higher retention rate of 70.8%, compared to a retention rate of 56.2% for those colleges without retention programs (Catalano & Eddy, 1993). However, Donovan (1989) suggests that for occupations where sudden shortages of qualified personnel occur (e.g. the nursing fraternity in New South Wales), the influx of large numbers of high-risk students substantially increases the range of needs required to assist students to graduation. Despite the fact that it has long been contended by professional nursing bodies that nurses suffer from low self-esteem, a lack of regard for this aspect of training continues (Moore, Kuhrik, Kuhrik & Katz, 1996; Ootim, 1998). Thus research suggests that although appropriately structured retention management plans can improve student attrition rates, many institutions are slow to develop such programs.

**Characteristics of the student population.** As previously discussed, determining the characteristics of the student population should be a primary and initial focus in the development of an effective retention plan, and identifying those strategies that provide the greatest potential for improved retention rates should then be determined. In her research, Rendon (1995) describes circumstances that are typical to most higher education institutions, suggesting that students attending two-year colleges in the U.S. should be considered as non-traditional students, because they are usually first-generation students, who study part-time, are usually employed in some capacity while attending college, are from lower socio-economic status levels, have poor high school achievement records, and may have intentions other
than course completion as their objective (Rendon, 1995). More than a decade earlier, a study of high attrition rates at a regional U.S. university by Longmore (1983) found that the attrition problems were difficult to identify because of the large number of students who attend the college on a part-time basis, who work full-time, and who attend for purposes other than to graduate. Thus, identification of the characteristics of the student population as a critical first step continues to be rediscovered in the research, supporting the assertion by Cowart-Cooper (1987) that despite the growing awareness of attrition issues by institutions, little in the way of effective action is actually being taken.

The following study highlights the impact of a student population that is of diverse character and typical of the student population in higher education institutions today. Stolar (1991) conducted a study of a non-traditional age university student population (i.e. students aged 25 to 55 years). Over one semester, the author examined such factors as student demographic characteristics, academic goals, attendance patterns, and their opinions of the institution. Following the research period (i.e. one semester), over 33% of students had withdrawn from their course of study. Findings by Stolar (1991) and Hilts (1991) suggest that non-returning students are least satisfied with factors such as job placement services, financial aid, student activities, and tutoring services. More specifically, Stolar reports that withdrawn students identified aspects such as financial hardship, conflicting job hours, unsatisfied personal need, and parenthood, as their most frequently cited reasons for not returning. Reports by various authors (e.g. Hilts, 1991; Byrd, 1990) outline what continuing students have generally nominated regarding important support services relevant to persistence: a campus Day Care centre; extended evening hours for the bookstore, cafeteria, and other campus offices; evening counsellor availability, opportunities for social interaction; a greater variety of evening course selections, with more Saturday classes; and a greater opportunity for flexible delivery. Recommendations of intervention strategies for non-traditional student populations by Byrd (1990) include providing credit for students' past experiences, providing information on possible sources of financial aid, establishing more liberal admissions requirements, providing quality low-cost day care services, and scheduling to meet the needs of students who are employed full-time. In her review of the literature regarding the persistence of adults in higher education, Kerka (1989) suggested that
three major aspects have a significant influence on retention rates: the educational environment, student characteristics, and student circumstances. Because administrators have very little influence over the latter two factors, the author suggests that institutions should focus their attention on the first aspect—the interaction between the institution and the student (Kerka, 1989).

**Student/institution interaction.** Tinto (1975; 1982; 1987; Tinto & Love 1995) and others (e.g. Pascarella, 1985; Marinaccio, 1986) identified an issue that was to become a dominant theme in subsequent retention research, that is, retention and attrition result from the interactions that take place between the student and the institution (Peel, 1999). However, various aspects of student/institution interaction have been found to have no impact on attrition. For example, Bean and Vesper (1994) report that faculty contact, an aspect that the researchers expected to be an important form of social interaction for students, was not significant to retention outcomes. Baker (1986) reported that a simple but effective strategy to improve retention rates is to encourage teachers to create a friendly atmosphere in class, and to actively work at showing an interest in students' other activities. Talbot (1987) suggests that an effective feedback channel between teacher and student regarding their academic performance will increase the potential for student persistence. A substantial number of researchers (e.g. Pagan & Edwards-Wilson, 2003; Mese & Spano, 1989; Brookman, 1989) argue that although student feedback is important, it is only one element of a much larger, potentially more effective strategy for increased retention. Mese and Spano (1989), for example, suggest that a mentor program is a possible cooperative effort between students and teaching staff that may be an intervention of more lasting breadth and value.

**Course Program Designs**

To a large extent, higher education course programs are designed according to the specifications of a number of stakeholders (i.e. the institution, industry, professional consultative committees, students), but ultimately, the institution generally has discretion over their structure and application. Reduced loads and extended course completion periods are typical options that institutions offer as an intervention for those students struggling with program demands. However, other
course program design strategies that have also proven to be successful include: providing an open-entry/open-exit competency-based individualised program (Jones, 1990); encouraging college natives (i.e. first-time higher education students) to not only complete the original course in which they had enrolled, but to also undertake further studies at the same institution rather than consider transferring to another college or university (Anderson & Polillo, 1987); providing a vocational/technical education focus from the start of a student's career, in contrast to the traditional view of education that regards proper learning as progressing from the general to the specific (Feldman, 1991); and including a portfolio development course to assess prior non-sponsored learning as its major strategy (Byrd, 1990).

Implications for the Present Research

Educational strategy is defined by Weissman (1990) as the patterns of institutional practices designed to support undergraduate education, and an important aspect of that strategy is programs that have persistence to graduation as one of their major goals (Harris, 1990). The literature suggests that the generalised educational strategies employed by most institutions have little impact on student retention, and only retention-oriented programs achieve some success in arresting attrition rates (Weissman, 1990). The facility that is the focus for the current study meets most of the criteria outlined by Tracey-Mumford et al. (1994), where for example, TAFE provides students with multiple entry and exit point options, flexible delivery programs, and recognised prior learning opportunities. Although these options are often used as a marketing strategy for recruitment, they have never been operationalised as a form of intervention for improving retention rates. Hence the literature has demonstrated that a structured and effectively coordinated retention plan can impact significantly on student course completion rates.

Enhancement Strategies for the Experimental Intervention

The purpose of this section is to provide an overview of the literature regarding effective intervention strategies. Intrusive intervention strategies were chosen for further investigation on the basis that they are considered to be more flexible in their application, while instructional intervention strategies were included
because they employ a hands-on approach in their techniques. A number of other strategies are also raised in discussion, including team building, tutoring and buddy systems.

**Intrusive Intervention Strategies Promoting Personal Attention**

A number of investigators believe that attrition interventions should be more invasive, playing a far greater role in the academic career of the student (Dreisbach, 1990; Kazazes, 1982). Intrusive intervention strategies generally comprise activities that promote individual attention for the student, and personal attention to the student according to Kerka (1995) is a key strategy to improve retention outcomes. Having problems listened to and acknowledged is important to the student (Cullen, 1994), and interventions that respond to this need may often mean the difference between a student continuing or withdrawing from their studies (Towles, Ellis & Spencer, 1993). Baker and Schultz (1993) report that two interview sessions with the student rather than one will produce higher retention outcomes. Quigley (1995) found that non-persisters who dropout in the first few weeks of their study program are typically loners who feel they did not receive enough teacher attention, and feeling socially isolated through the lack of communication and interaction with faculty staff is a major reason cited by students for their withdrawal (Vann & Hinton, 1994). Studies have also shown that non-persisters have identified as a major influence in their decision to withdraw the belief that faculties do not care about their students (Li & Killian, 1999). Various strategies such as peer advising have been employed to promote personal attention to students (Vanderpool & Brown, 1994; Shields, 1994; Li & Killian, 1999). For example, Vanderpool and Brown (1994) found that increasing personal contact was effectively achieved through encouraging peer telephone calls within the first two weeks of the study program, believing that the practice gave them a sense of community and put a human face to the university.

Intrusive strategies are typically the responsibilities of the academic advisor, and numerous researchers in this area (e.g. Li & Killian, 1999; Shields, 1994; Glennen & Baxley, 1985; Glennen, Farren & Black, 1984; Kapraun & Coldren, 1982; Clark, 1989) have reported their support for or found the application of academic advising strategies to be a significant dimension of retention programs.
According to White and Mosely (1995), each student should be given a professional student advisor at enrolment. Kapraun and Coldren (1982) suggest that components such as institutional commitment, faculty endorsement of advisor responsibilities, advisor training, advisor evaluation and recognition, peer advisors, a well-defined referral system, and an information support system, will develop and maintain a positive, personalised relationship between the student and the institution (Kapraun & Coldren, 1982). Kazazes (1982) identifies these same factors, but suggests that academic advisement should be provided in more diverse ways because no universal delivery system operates best for all students. Programs that employ intrusive intervention strategies have resulted in significant improvements in retention rates, achieving increases from as much as 5% (Garnett, 1990) to 8% (Backhus, 1989) for non-traditional student populations. In regard to the non-traditional mature-age student, effective advisor/student interaction provides the opportunity for the identification of problems typical to this population, such as adult anxiety over past school experiences (Smith & Bailey, 1993).

A model that comprises three separate forms of advisor/student relationship was developed by Dreisbach (1990) for application in a university retention program is of particular interest to the current study. The first relationship model is described as “paternalism”, where the advisor assumes responsibility and authority for decision-making. The second is referred to as the “agency” model, where most of the responsibility and authority for decision-making is undertaken by the student, and the advisor simply acts on the student's behalf. Dreisbach (1990) found that neither the paternalism nor the agency models were adequate as an intervention because they failed to recognise the abilities, ethical rights and responsibilities of either party involved in the relationship. The “contract” model, third in Dreisbach’s (1990) classification system, was found to have a significant impact on the increase of retention rates. Over 71% of study cohorts preferred the contract model, citing the equality of both the advisor and advisee in the relationship as its greatest strength. Twenty six percent of the students who preferred the contract model indicated that advisor availability was a significant factor in their decision to continue in their study programs (Dreisbach, 1990). However, a limitation in the model may be the degree to which the advisor and advisee are not equal given advisors are usually teaching staff.
One activity that works particularly well in the contract model is the design and monitoring of the student’s academic goals. Like many other researchers (e.g. Gardner & Broadus, 1990; Hodges, 1982), Slark and Nguyen (1994) report more positive retention outcomes for students with clear goals (e.g. striving for specific vocational qualification). There are however, reports in the literature that suggest not all career and goal planning programs are successful. For example, Barnette (1989) found that a career planning workshop strategy employed in his study achieved an improved retention rate for only one year over the six years of its application. Fortson (1997) employed a similar workshop strategy to improve student academic self-concept but achieved no significant results.

The present investigation accounted for these aspects of intrusive intervention strategies (Dreisbach, 1990) by including several components as secondary strategies in the experimental intervention, namely: the agency model, that is, where the responsibility and authority for decision-making is undertaken by the student (referred to as Student-Activated intervention); and the advisor model, i.e. where equal roles in action and responsibility are shared between the student and the advisor (referred to as the Institution-Activated intervention, formalised by the establishment of a verbal contract between the returning student and the program advisor with emphasis on career aspirations).

**Instructional Intervention Strategies**

Pinkston (1987) suggests that mature-age students, more as a result rather than “despite” their long absence from the educational setting, have “learned how to learn” through life experiences, and that this constitutes a skill that can be further developed with the right intervention. Many of the designs for instructional interventions attempt to make use of this relatively unrecognised characteristic of the mature-age student. For example, from the insight gained in his study, Howard (1989) reported a program of instructional strategies that improved persistence outcomes. These included providing opportunities for cooperation, allowing variable time options, allowing student input, allowing choices of content and process, developing clear and challenging expectations, encouraging self-assessment, allowing practice in setting goals, putting emphasis on relevance, providing a variety
of instructional modalities, providing opportunities for a hands-on use of materials, and generating an awareness of cultural diversity (Howard, 1989). A strategy that best supports the instructional strategy model is the provision of an independent student learning centre (Li & Killian, 1999; Howard, 1989). A study by Vincent (1983) that employed an independent learning centre as its primary intervention strategy produced an improved student retention rate of over 15 percent.

Various researchers have reported very impressive increases in retention rates as a result of the application of instructional based interventions, as much as 17 percent in some studies (Borst & Cordrey, 1984). Thus, research generally suggests that instructional intervention strategies are successful because they tend to build on the existing life skills of the mature-age student. It appears, however, that results are not inclusive of all student populations, particularly in regard to the effects of gender and voluntary/mandatory participation in programs. From an investigation of eight separate institutions regarding the effectiveness of a classroom assessment model based on instructional methods, Catlin and Kalina (1993) report that although retention rates had improved for the female students who were exposed to the model compared to students in the control groups, male student retention rates remained unchanged. Lum and Alfred (1987) established that, following a study of over 6,000 instructional-based program students, those who participated voluntarily made relatively short-term academic achievements, while those whose participation in a remedial program was mandatory had higher (but not significant) rates of persistence. Hence, while instructional-based interventions appear to achieve improved retention outcomes generally, it is clear that results can vary depending on the characteristics of participating students.

**Team Building, Buddy Systems and Tutoring Programs**

Research suggests that keeping students in their cluster groups creates a social environment that motivates adult learners to persist (Ashar & Skenes, 1993). According to Dukes and Gaither (1984), maintaining students in cluster groups allows students the opportunity to bond more closely and generate a team spirit and informal support activities (e.g. buddy systems) that prove to be an effective means of increasing retention. Other studies have shown clear evidence to suggest that
under-prepared students who are tutored are more likely to stay in their study program than the average student who is not tutored (Girard, 1991; House & Wohlt, 1991). A successful tutoring program, according to a number of researchers (e.g. Fink & Carrasquillo, 1994; Maxwell, 1990), is one which expends much effort identifying appropriate tutors (i.e. where tutors are recommended by a faculty member, are carefully screened, and trained in how to work with under-prepared students before they start tutoring), and in their evaluation (e.g. regular assessments by their coordinators, instructors, and their students). As part of his research parameters, MacDonald (1987) compared the course completion rates of students who attended tutoring programs on the basis of referral or non-referral and found that the likelihood of a referred student attending a tutoring program is directly related to the age of the student (i.e. the older the student the less likely they are to participate), with the program of study and the courses in which they are enrolled also having some effect. Thus, while there is some support to suggest that formal tutoring programs influence retention, it appears that informally activated team building and buddy systems may be a more appropriate intervention strategy for the mature-age, non-traditional student.

**Student Tracking and Monitoring Systems**

One issue that most attrition researchers agree is that an early warning system of students at risk of withdrawal is essential to improving retention (Tinto, 1987; Krotseng, 1992; Pickering, Calliotte & McAuliffe, 1992; Boulard, 1994). Over the last two decades, the importance of computerized student tracking systems has been increasingly recognised in the literature. During the late 1970’s, Hoyt (1981) for example, developed a student tracking system in order to complete a dropout simulation projection program. Hisada (1988) suggested that a computerised database system should be utilised in higher education facilities that accommodates student flow and tracking file systems, with well-considered planning regarding its computer capacity, data manageability and system outputs. Glover and Wilcox (1990) state that other information critical to the retention monitoring process includes details of multi-year admissions, details of financial aid to students, and academic data integrated with student surveys of college adjustment, reasons for leaving, student involvement, and college experience. Glover and Wilcox (1990)
suggest that a computerised system should be employed to not only enable quick feedback on student attendance patterns and graduation outcomes, but also allow users an interactive modelling approach in order to conduct longitudinal and comparative studies.

A number of tracking programs have been designed according to an established theory, and the measures derived from the instruments developed for the research are stored to a database for analysis. For example, the Tracking Retention and Academic Integration by Learning Style project (TRAILS; Kalsbeek, 1989) was developed for application at the Saint Louis University and used the Myers-Briggs Type Indicator (MBTI) as the major data collection instrument from which assessments of student social and academic integration and the cognitive and affective processes that influence this integration were made. In his research, Rudmann (1992) describes personal computer-based Early Alert Retention System (EARS) software, which is designed to identify and assist students experiencing academic difficulty within the institution. Following the piloting of the EARS program, the author reports that the full-time students who became involved in the intervention achieved the highest end-of-year retention (81.3%). Although the outcomes were not as significant, retention rates for part-time students exposed to the program had also increased (achieving an increase of 7.6%). Several other researchers have reported their support for the early alert system strategy (Kerka, 1995; Mese & Spano, 1989; Li & Killian, 1999). Mese and Spano (1989), for example, not only support the data management and the employment of student tracking systems from an administrative perspective, but also suggest that the institution’s information systems should be accessible to the student at any time, and in a user-friendly format. Thus research has identified computerised early alert systems for student tracking and monitoring as effective tools to reduce attrition levels.

**Strategies External to the Classroom Environment**

The preceding discussion of institutional initiatives focused on preventative measures such as the provision of student facilities and services, student management, and student tracking and monitoring systems. The following discussion
also features strategies drawn from a preventative perspective, but oriented to a more personal level of interaction with the student.

**Dropout brochures and information packages.** From an institution’s perspective, the difficulty is being able to identify an at-risk student “out of a crowd” so that they may be connected with the necessary assistance (Nielsen & Polishook, 1984). One strategy that attempts to bridge this gap between “students in need” and the supporting services available is a booklet. Many institutions now distribute general information booklets that discuss issues regarding the entire academic journey. Such booklets typically include the benefits of college attendance, the various resources and support services available, and key elements of scholastic success. Nielsen and Polishook (1984, p. 6) suggest that the strategy, “directs students to the means of achieving success—to the strategies that work and to those people and programs that help them work”. Several researchers (e.g. de Silva & Freund, 1987; Fink & Carrasquillo, 1994) have designed resources that range from comprehensive information packages designed specifically for use by teachers and administrators involved in persistence interventions, to more simplistic resource strategies such as dropout information brochures for students (Lambert, 1995; also see Appendix D.1 to view the dropout brochure applied in the current study). According to de Silva and Freund (1987), the topics addressed in their package include benefits for the college, identifying typical non-persistence patterns of behaviour, and strategies for self-management through self-mastery (e.g. time management, assertiveness, study skills, and learning styles). The authors included in the package a number of checklists and self-test questionnaires, together with advice for student instruction regarding: goal selection, applied learning theory, your style of learning and thinking, the right and left brain hemisphere functions, train yourself to induce deep muscle relaxation, and a formula for success. Fink and Carrasquillo (1994) developed the "Student Retention Strategies Handbook" which although similar in design to the booklet by de Silva and Freund (1987), appears to contain substantially more application-based suggestions for teachers to refer during the first few days of class, and then other strategies to be employed throughout the duration of the semester. Hence booklets containing information for both students (e.g. time management etc.) and teachers (e.g. classroom exercises which serve as ice-breakers)
have been found to be a useful strategy in bridging the gap between students in need and the supporting services available to them.

*Maintaining external contact.* A number of institutions have had reasonable success in retaining students by putting in place projects designed to improve the retention rates of students following their first semester attendance (Ignash, 1993). McCarthy (1989) conducted a study to measure the effect of an intervention that was based on a mid-semester letter from the faculty Dean. Students deemed at-risk of non-persistence were notified in the letter of the significance of their grades and encouraging them to either consult with their advisor or division chair, or to complete the formal withdrawal process if they did not intend to complete the semester. McCarthy found that approximately half of the students who received the letters and half of those who did not acted upon their mid-semester grades by exercising the college’s course withdrawal option or by improving their grades. A 17 percent increase in retention was achieved for those who received the letter in comparison to the students who did not receive the intervention (McCarthy, 1989).

To encourage non-returning students to attend during the second semester, one college employed a mailing strategy that comprised two letters; the first letter was signed by the college Chancellor indicating that the student had been missed at the college, and the second letter was a reminder of the following semester’s registration particulars (Ignash, 1993). The authors report that the institution achieved a 2.5% increase in students returning to college over the non-returning students who did not receive the letters.

Thus research suggests that maintaining contact with students deemed at-risk of non-persistence during attrition crisis periods achieve positive but substantially varying results.

*Implications for the Present Study*

A number of strategies were borrowed from the educational, intrusive and instructional intervention models for use in the present research. A major aspect of the experimental intervention for the current study is based on Dreisbach’s (1990)
model of adviser/student relationship, where the “agency” (student directed) and “paternal” (adviser directed) became pivotal aspects of the treatment programs employed in the major study. Educational strategies (i.e. class-based instruction) specific to the circumstances of the part-time mature-age student have also been utilised in the experimental interventions. The educational-based interventions aim to improve and maintain students’ emotional stability, self-esteem and inter-social relations by: enlightening participating students of the implications of likely changes in the demands by familial, social and work circumstances; generating an awareness of individual differences; and instructing on methods to better deal with feelings, emotions and stress (see Appendices D2–D6 to view instructor’s guides for delivery of the material). Team building and tutoring strategies were also employed in the major intervention for the current study as past attrition research has found that such strategies have significant influence on student retention rates.

TAFE NSW is at present considering the implementation of a computerised system of student attendance and assessment recording (referred to as CLAMS). At the time of the research undertaking this system was not available, however, a manual adaptation of a number of strategies from the student tracking system models discussed in this chapter were utilised in the experimental intervention including attendance and assessment tracking, records of self-evaluation outcomes, and a structured early alert process for quick identification of students at risk of withdrawing. Preventative measures external to the classroom environment were also investigated, and strategies such as dropout brochures, and a system of correspondence with students prior to and following withdrawal from their program of study were also included in the experimental intervention.

Summary

An extensive review of the literature regarding self-concept enhancement and attrition interventions has identified the strengths and weaknesses of a diverse number of intervention designs. This chapter has presented an overview of the strategies on which the model for the experimental intervention in the current study is based. Reasons likely for the failure of intervention studies which utilise self-concept enhancement strategies are associated with poor intervention designs, weak
statistical models and/or small numbers comprising the groups being studied. The current study capitalises upon recent advances in self-concept theory and research in an attempt to obviate the problems typical to past self-concept enhancement studies.

Research regarding attrition interventions has identified that the programs, facilities and services already in operation at the institution that is the focus of the current study are individually appropriate and have the capacity to contribute to the improvement of student retention rates. However, the absence of an effectively integrated institution-wide retention plan not only explains the continued high rate of student attrition at the facility, but also is indicative of the potentially significant implications of the present investigation for the TAFE setting.
CHAPTER 5
AIMS, HYPOTHESES AND RESEARCH QUESTIONS
AND THEIR RATIONALE

Introduction

The literature has proposed a great many potential variables to impact on a
mature-age student’s participation in or withdrawal from a course of study.
Investigations also show that despite the extensive work done by researchers in
persistence intervention studies, retention rates continue to reflect the long history of
high attrition in TAFE institutions. Few studies in attrition have examined the influence
of self-concept constructs regarding student non-persistence patterns, and fewer still
have utilised the latest advances in research to test multidimensional aspects of the self-
concept rather than the single, global measure typically used in past self-concept
research (see Chapter 4). This chapter presents the framework for three studies
comprising the present investigation that are designed to advance our understanding of
persistence behaviour in higher education.

Study 1 provides the structure to psychometrically test the reliability and
validity of the Self Descriptive Questionnaire Version III (SDQ III), originally
developed by Marsh (1987b) to measure multidimensional self-concepts for older
adolescent and young adults, modified for local application in this study with mature-
age non-traditional students who study part-time in TAFE. Study 2 outlines the
framework to investigate the impact of the student’s self-concept on their decision to
persist using quantitative methodology, whilst Study 3 utilises qualitative methodology
to examine students’ rationales regarding specific facets of persistence patterns. The
chapter begins with a description of the broad aims and objectives for the current
research, followed by the presentation of the specific problem to be addressed. The
hypotheses and research questions for each of the studies is then described, and a rationale for each of the hypotheses and research questions is also presented.

Study 1: The Nature and Structure of Self-Concept and Self-Other Agreement

The Problem

To what extent are the SDQ III, the newly developed additional self-concept scales, and a short modified version of the SDQ III, valid and reliable measures of the self-concepts of part-time mature-age TAFE students? Do mature-age students who are working full-time and studying part-time have the same structure and multidimensionality in self-concept constructs as is established for older adolescent and young adult populations? To what extent do self-ratings of self-concept agree or disagree with ratings of significant others?

Aims

Study 1 aimed to capitalise on recent advances in self-concept theory and research in order to:

1. Test the psychometric properties of the SDQ III in order to identify a psychometrically sound, multidimensional self-concept measurement instrument for use with a specialised population of part-time mature-age TAFE students;
2. Develop new psychometrically sound self-concept scales of salience for part-time mature-age TAFE students;
3. Test the psychometric properties of a shortened version of the SDQ III and newly developed purpose-designed self-concept scales for part-time mature-age TAFE students;
4. Compare and contrast the nature and structure of self-concept for part-time mature-age TAFE students in comparison to results for other adolescent groups;
5. Compare and contrast the extent of congruence and dissonance between self and significant others’ ratings of multiple dimensions of self-concept; and
6. Elucidate the relations between SDQ III self-concept scales and newly developed self-concept scales of relevance to TAFE students.

Statement of the Hypotheses: The Nature and Structure of Self-Concept and Self-Other Agreement

Hypothesis 1.1. The SDQIII-A will be a reliable measure of the self-concepts of part-time mature-age TAFE students whereby the reliability of the SDQIII-A will be comparable to the reliability of the SDQ III in previous research measuring the self-concepts of older adolescent and young adults.

Hypothesis 2.1. The SDQIII-A will be a reliable measure of the self-concepts of part-time mature-age TAFE students whereby the factor structure of the SDQIII-A will be comparable to the factor structure of the SDQ III in previous research measuring the self-concepts of older adolescent and young adults.

Hypothesis 3.1. The reliability and factor structure of a shortened modified version of the SDQ III and a shortened version of newly developed self-concept scales of relevance to TAFE students will be comparable to results derived from the extended version of this instrument.

Hypothesis 4.1. The nature and structure of self-concept for part-time mature-age TAFE students will be similar to previous SDQ research outcomes achieved for older adolescent and young adult groups, whereby the 13-factor a priori model will be identified and the eight non-academic SDQ III scales (Physical Ability, Physical Appearance, Opposite Sex, Same Sex, Religion, Emotional Stability, Honesty and Parents self-concepts) will be more positively correlated with each other than with the four academic SDQIII scales (Mathematics, Verbal, Problem Solving and Academic self-concepts).

Hypothesis 5.1. There is consistently high self-other agreement on matching scales, supporting the convergent validity of the self-concept ratings based upon self-ratings and significant others’ ratings.
**Hypothesis 5.2.** There is good support for discriminant validity in that convergent validities for each trait based upon self perceptions and significant others' ratings will be consistently higher than correlations between that trait and other traits.

**Statement of the Research Question: The Nature and Structure of Self-Concept and Self-Other Agreement**

**Research Question 6.1.** Does the data indicate whether the relation characteristics between the original thirteen self-concept scales are similar for the four new self-concept facets, and do scale relations patterns extend between the original and new self-concept facets?

**Rationale for the Hypotheses: The Nature and Structure of Self-Concept and Self-Other Agreement**

**Hypothesis 1.1–2.1.** The SDQ III (Marsh, 1992) is considered to be the most reliable and valid measure available of multiple self-concept for older adolescents and young adults (Byrne, 1996). As such it is reasonable to predict that the sound psychometric properties of the SDQ III demonstrated by previous research will extend to mature-aged TAFE students. The current study also extends the original version of the SDQ III from 13 a priori factors (136 items) to a 17-factor (178 items) a priori design. The extended factors are based on parallel wording of the original SDQ III, hence it is predicted that these factors will also be reliably measured.

**Hypothesis 3.1.** A shortened version of the 17 factor instrument was developed to facilitate administration and reduce demands placed upon participants. Despite the popularity of reducing a long form instrument to a shorter version, critics of the practice (e.g. Levy, 1968; Smith & McCarthy, 1995; Smith, McCarthy & Anderson, 2000) have argued that the resulting short form is never or rarely justified, and recent reviews of short forms indicate that actual practice falls far short of ideal or even reasonable standards (e.g. Smith, McCarthy & Anderson, 2000). Researchers Smith et al. (2000) report that not one short form instrument that the authors had examined met their nine point criteria for appropriate psychometric integrity (see Chapter 3). Marsh, Ellis, Parada and Richards (in press) examined the proposed set of
methodological guidelines for the development of short forms by Smith et al. The Marsh et al. study was both methodological (introducing new statistical procedures that provide a stronger basis for the development and evaluation of short forms than has previously been employed) and applied (by demonstrating the appropriateness of the new, short form version of the widely used and highly regarded SDQII (Marsh, 1992) instrument that is designed to measure multiple dimensions of self-concept).

The pertinent aspects of the Marsh et al. response regarding their evaluation of the methodological guidelines by Smith et al. (2000) provide the basis of the short form development for the current study. Marsh (1993a; Marsh, Craven & Debus, 1998) argue that theory, measurement, research, and practice are inexorably intertwined so that the neglect of one will undermine the others. Hence the development, evaluation, and refinement of the short measure used in the current study, like the long form upon which it is based, is an on-going process that is informed by theory, empirical research based on strong methodology, and actual application (Marsh et al., 2003). As such, the short form version of the SDQIII-A is expected to display similar psychometric properties to the full length extended version of the instrument.

**Hypothesis 4.1.** The development of the Self-Description Questionnaire (SDQ) instruments by Marsh (1987b, 1988, 1989, 1990c, 1992) made possible the effective measurement of the multidimensional facets of the self-concept construct. Continuing and recent reviews (Marsh, Byrne & Shavelson, 1988; Hattie, 1992; Byrne, 1996; Marsh & Craven, 1997) support the multifaceted structure of self-concept and argue that the construct cannot be adequately understood if its multidimensionality is ignored.

The multidimensionality of self-concept scales, proposed in the Marsh/Shavelson model (see Chapter 3) of self-concept upon which the SDQ III is based, predicts that for the original 13-factor a priori model the eight non-academic SDQ III scales (Physical Ability, Physical Appearance, Opposite Sex, Same Sex, Religion, Emotional Stability, Honesty and Parents self-concepts) will be more positively correlated with each other than with the four academic SDQ III scales (Mathematics, Verbal, Problem Solving and Academic self-concepts) and these predictions have
been supported by a wealth of research (Hattie, 1992; Byrne, 1996; Marsh & Craven, 1997). Hence, Hypothesis 4.1 posits that the nature and structure of self-concept for part-time mature-age TAFE students will be similar to previous SDQ III research outcomes achieved for older adolescent and young adult groups.

**Hypothesis 5.1–2.** The influence of significant others on the self has been an integral part of self-concept research for more than a century. Messer and Harter (1986) attempted to measure the impact of the opinions of significant others (e.g. parents and other family members etc.) regarding the individual’s self-worth, based on the premise by Cooley (1902) that the self was a social construction, representing the incorporation of attitudes which one feels significant others hold toward the self. While the self may be the initiator, according to Beane and Lipka (1984) self-concepts develop mainly in a social context, influenced largely by feedback from significant others. Numerous researchers throughout the last century have continued to identify the importance and role of significant others to the self. For example, Sullivan (1953) noted that individuals placed more importance on, or were more influenced by feedback from significant others (i.e. those of the highest importance to the individual), while Rosenberg (1979; 1989) established that for children, mothers are ranked as most significant, followed by fathers, siblings, teachers, friends and general peers.

Although the role of significant others is examined in a number of ways in the current study, this set of hypotheses investigates the self-other relations of adult students of all ages, where significant others are typically partners rather than parents as in past SDQ research. The 17 self-concept subscales of the SDQIII-A are examined utilising the same statistical methods applied by Marsh (1987b; 1988; 1992) to determine the convergent and discriminant validity of the original SDQ III instrument (see Chapter 6). In short, Marsh (1992) utilised confirmatory factor analysis (CFA) and structural equation modelling (SEM) to construct a multitrait-multimethod matrix of factor coefficients to examine the convergent and discriminant validity of the 13 factors of the original SDQ III. According to Marsh (1992), convergent validity is inferred from substantial correlations between self-ratings and inferred-ratings on matching self-concept traits, while discriminant validity provides a test of the distinctiveness of self-other agreement and of the
multidimensionality of the self-concept facets; it is inferred from the lack of correlation between non-matching traits (see Chapter 6). It is anticipated that this pattern of relations of self-other agreement between older adolescents and significant others based on the original SDQ III scales will extend to the newly developed scales.

Rationale for the Research Question: The Nature and Structure of Self-Concept and Self-Other Agreement

Research Question 6.1. Early research by Marsh (1987b) regarding the original version of the SDQ III had established the psychometric distinction between the 13 self-concept factors that comprise the instrument, where correlations between like factors were high, while correlation coefficients between non-related factors were low. A research question was posed to test whether this same psychometric principle applies to the relations between the four newly developed self-concept scale extensions of the SDQIII-A, and extends between the original 13 subscales of the SDQ III and the new four subscales of the SDQIII-A. Because the four new subscales of the SDQIII-A have been developed specifically for the application for the TAFE population in the current study, there exists no previous evidence of factor relations through empirical research and therefore a research question is posed rather than a specific hypothesis.

Study 2: Self-Concept Enhancement and Attrition Intervention

The Problem

Do factors such as TAFE students’ demographic and background measures, and self-ratings of course and work demands, and social and family circumstances predict students’ persistence behaviour? Do students’ self-ratings of course completion predict persistence patterns? Do ratings by significant others of student course completion predict persistence behaviour? To what extent do students’ self-ratings and significant others’ ratings of course completion agree? Do students’ initial self-ratings of multidimensional aspects of self-concept predict persistence patterns? Do three types of self-concept enhancement/attrition interventions (basic intervention, basic and self-
activated intervention, basic and institution-activated intervention) enhance TAFE students’ persistence in the course compared to a comparison group who did not participate in these interventions? Do self-activated attrition interventions achieve increases in student persistence or do externally applied interventions managed by the institution achieve higher retention outcomes? To what extent do different types of self-concept enhancement/attrition interventions impact on multiple dimensions of self-concept? What factors do TAFE students self-report influence their decisions to withdraw or persist from their course?

Aims

Study 2 aimed to capitalise on recent advances in theory and research in order to:

1. Explicate whether the demographic variables of age and gender, and the interaction of these variables, predict student persistence patterns;
2. Elucidate whether background variables such as the students’ country of birth, marital and socio-economic status; their pre-course academic outcomes (i.e. pre-course acumen test, high school achievement); and their parental circumstances (i.e. parents’ place of birth, occupation, and level of education) are predictive of student non-persistence patterns;
3. Determine whether students’ self-ratings of course and work demands, and social and family circumstances predict persistence behaviour;
4. Test whether students’ self-ratings of course completion predict persistence behaviour;
5. Determine whether significant others’ ratings of support and student course completion predict student persistence behaviour, and test the extent of agreement between student and significant others’ ratings of course completion;
6. Test whether students’ Time 1 self-concept ratings are predictive of persistence behaviour;
7. Test the impact of three self-concept enhancement attrition interventions on first year TAFE students’ continuance in their course compared to a comparison group who did not participate in these interventions;
8. Determine whether student-activated interventions or institution-activated interventions achieve higher persistence outcomes; and

9. Compare and contrast the extent to which three different types of self-concept enhancement/attrition interventions impact on facets of self-concept most relevant to the goals of the intervention, and whether these differences vary as a function of student persistence.

Statement of the Research Questions: Predictors of Attrition

Research Question 1.1. To what extent are students' demographic variables of age and gender, and the interaction of these variables, predictive of student persistence?

Research Question 2.1. To what extent are various background variables such as the students' country of birth, marital and socio-economic status, students' pre-course academic outcomes (i.e. pre-course acumen test, high school achievement), and parental circumstances (i.e. parents' place of birth, occupation, and level of education) predictive of student non-persistence patterns?

Research Question 3.1. To what extent do self-ratings of course and work demands, and social and family circumstances predict students' persistence behaviour?

Research Question 4.1. To what extent does students' self-rating of course completion predict student persistence behaviour?

Research Question 5.1. To what extent do significant others' ratings of student course completion and support for the student predict student persistence behaviour, and to what extent do these ratings agree?

Research Question 6.1. To what extent are students' Time 1 self-concept ratings predictive of student continuance?
Statement of the Hypotheses: The Impact of Intervention Strategies on TAFE Student Persistence Patterns

Hypothesis 7.1. Beginning TAFE students who have experienced a Base Treatment intervention only, a Base Treatment intervention combined with a Student-Activated intervention, or a Base Treatment combined with an Institution-Activated intervention will display statistically significant persistence rates compared to a Comparison group of TAFE students who did not receive these interventions.

Hypothesis 8.1. Beginning TAFE students who have experienced a Base Treatment combined with a Student-Activated intervention or a Base Treatment combined with an Institution-Activated intervention will display statistically significant higher persistence rates compared to students who have participated in a Base Treatment only intervention.

Hypothesis 8.2. Beginning TAFE students who have experienced a Base Treatment combined with an Institution-Activated intervention will display statistically significant higher persistence rates compared to students who have participated in a Base Treatment combined with a Student-Activated intervention.

Statement of the Research Questions: The Impact of Self-Concept Enhancement and Attrition Interventions on Self-Concept

Research Question 9.1. To what extent is student continuance related to multiple facets of student Time 2 self-concept measures?

Research Question 9.2. To what extent do three different types of self-concept enhancement/attrition interventions impact on facets of self-concept most relevant to the goals of the intervention, and do these differences vary as a function of student persistence?
Rationale for the Research Questions: Predictors of Attrition

Research Question 1.1–2.1. Noted theorists in attrition research, Vincent Tinto (1982; Pascarella and Terenzini, 1980) and John P. Bean (1980; 1985; Bean & Metzner, 1985) have identified a number of student demographic and background variables predicted to impact on student retention in their widely used theoretical models of student attrition. However, conflicting results in relation to predictors of attrition permeates the research literature (see Chapter 2). For example, research has identified that older students are more likely to dropout than traditional-age students (Windham, 1995, Stolar, 1991; Brooks, 1991), yet conversely, other researchers have found no significant relation between age and attrition (Summers, 2000; Mohammadi, 1994; Baker, 1986; Duball & Baker, 1990). Other research has identified the age of the student as the variable believed most likely to impact either on its own, or in combination with other variables, on the withdrawal decision of the student (Hunter & Sheldon, 1980; Lanni, 1997). Gender has also often been identified as a potential predictor of attrition when considered singularly (Wolf-Lockett, 1998; Fischbach, 1990; Mercer, 1993), but has been found to lose its cogency when other variables are included in the analysis (Summers, 2000; Mohammadi, 1994). Research has also identified various background variables as potential predictors of student persistence including the: students’ country of birth, marital and socio-economic status; students’ pre-course academic outcomes such as pre-course achievement tests and high school achievement; and parental circumstances such as parents’ place of birth, occupation, and level of education (Zhao, 1999; Richardson & Attinasi, 1982; Hagedorn, Maxwell & Hampton, 2002; Fidler & Hunter, 1989; Bean & Metzner, 1985; Gerardi, 1996). However, other researchers have either not been able to replicate these outcomes or have found that when other variables are included in the prediction model the individual effects of these variables are largely removed (Wall, Lessie & Brown, 1996; Duball & Baker, 1990; Morris, 1994; Stoeckker, Pascarella & Wolfle, 1988; Rudmann, 1992).

Research regarding demographic and background variables as potential predictors of non-traditional student withdrawal is clearly equivocal, prompting the need for a research question rather than a specific hypothesis.
**Research Question 3.1.** Numerous researchers have attempted to predict student persistence by examining non-cognitive measures derived from student ratings of their perceptions (Pratt & Gentemann, 1984). The extent to which student self-ratings of course and work demands, and social and family circumstances predict students’ persistence behaviour has been the object of substantial attrition research for traditional higher education students, but to a far lesser extent for the non-traditional mature-age student population. Outcomes reported in the literature in this regard are typically paradoxical (see for example Lanni, 1997; Swager, Sarah, Campbell & Orlowski, 1995; Richardson & Attinasi, 1982; Bers & Smith, 1991; Duball & Baker, 1990; Kerka, 1989). Because of the equivocal nature of findings in this area of attrition research, and no evidence of research with this focus in any regard to the TAFE general student population, a research question was posed rather than a specific hypothesis.

**Research Question 4.1 and 5.1.** Students’ self-ratings that represent their prediction of course completion have been identified in past research as a potential predictor of student persistence. In their research, Okun, Weir, Richards and Benin (1990) identified that the student’s rating of “commitment to the intention to stay” in their program of study was the strongest predictor of continuation status, while Streckfuss and Waters (1990) found that student course completion expectations did not contribute strongly to students’ decisions to withdraw. Other research suggests that students with ratings of significantly higher expectations of persistence still achieve attrition rates similar to the general student population (Tinto & Love, 1995), and that student self-prediction ratings are less reliable predictors then other non-cognitive student variable ratings (e.g. academic self-concept; House, 1992). Research investigating student self-predictions of course completion has therefore produced conflicting prediction outcomes, and as a result Research Question 4.1 was posed rather than a hypothesis. Related to this aspect of persistence prediction is the significant others’ rating of the student’s likelihood for course completion. Research Question 5.1 examines the relations of prediction ratings of student course completion by significant others to the students’ own self-prediction rating, and although there exists no evidence of established research in this regard in past attrition studies, the research question was formulated to investigate the potential of this measure as a predictor of student persistence. Another issue for testing relates to the support
provided by students' significant others. The presence of significant other support for
the student in their studies has been identified as integral to student persistence. Various
studies have identified that the level of encouragement from the student's family is
one of the most cogent predictors of persistence (Okun, Benin & Brandt-Williams,
1996) or withdrawal (Allen, 1994). Conversely, Waggener and Smith (1993) found
that family encouragement only served as a predictor of a student's intention to enrol
in a study program following the initial orientation, but had no impact on the
student's decision to persist in the course of study. This aspect of the research
question was therefore constructed due to the equivocal results in the research
regarding the relation of significant others' rating of support for the student and its
potential to predict student continuance.

**Research Question 6.1.** Student self-concept ratings have also been investigated
for their predictive potential regarding student persistence. However, past attrition
research has typically relied on an all-encompassing global measure (e.g. general
esteem; see Rosenberg, 1979) of the construct to examine the relations. For several
decades reviews of self-concept research (e.g. Hattie, 2000, 1992, 1986; Byrne, 1984;
Burns, 1979; Shavelson, Hubner & Stanton, 1976; Wells & Maxwell, 1976; Wylie,
1974, 1979) have emphasised the limitations of the unidimensional approach to
measurement of the construct, typically suggesting that this method of self-concept
measurement suffers from a lack of a theoretical basis in most studies, a poor quality
of measurement instruments used to assess self-concept, and methodological short-
comings. A general lack of consistent findings according to Marsh (1988, p. 40), are
possibly responsible for "the contradictory findings which abound in self-concept
research".

Research Question 6.1 was therefore posed to test whether any of the 17 factors of
the SDQIII-A predict student persistence. This approach provides an opportunity to
conduct a far more intensive examination of the potential for self-concept to predict
student persistence. The limited research regarding multidimensional self-concept
investigations as predictors of student persistence warrants that the inquiry should be
presented as a research question and not as a hypothesis.
Rationale for the Hypotheses: The Impact of Intervention Strategies on TAFE Student Persistence Patterns

Hypothesis 7.1 and 8.1–8.2. The interventions designed for the current study are in response to the researcher-devised theoretical model of non-traditional student attrition developed to explain possible influences on TAFE student persistence patterns (see Chapter 2). Program groups comprising the experimental intervention were exposed to a combination of intervention strategies (see Chapter 6). This set of hypotheses determines the impact of three intervention models through Program group performance in student persistence outcomes.

The first intervention type is referred to as the Base Treatment and focuses on the self-concept enhancement of students participating in the experimental interventions by utilising strategies developed by Beane and Lipka (1984), where for example, students are encouraged to reflect upon their self-description in terms of clarity, accuracy, breadth and depth. Self-concept interventions have not typically been successful in improving student retention rates in higher education (see Chapter 4), a situation largely attributable to poor research designs. Methodological flaws identified for past self-concept research generally include the application of weak interventions, the use of potentially powerful interventions applied with small sample sizes or weak designs so that effects derived from the interventions are unlikely to be statistically significant, and a poor fit between the intended goals of the intervention and the specific dimensions of self-concept used to evaluate those interventions (Craven, Marsh & Burnett, 2003; Hattie, 1992; Marsh & Hattie, 1996; Marsh & Craven, 1997; Marsh & Richards, 1988).

The acquisition of a positive self-concept is considered a desirable goal, and has been identified to act as an important mediating variable that facilitates the attainment of other desirable outcomes, such as academic achievement, motivation and self-fulfilment (Craven, Marsh & Burnett, 2003; Marsh & Craven, 1997). Hypothesis 7.1 examines the effect of self-concept enhancement as a mediating variable to student persistence outcomes, where three Program groups who participated in the self-concept enhancement intervention are contrasted to a Comparison group who were not exposed to the Base Treatment intervention. Given
that well controlled interventions have demonstrated that self-concept enhancement is associated with increased persistence and academic striving behaviours (Craven et al., 2003), it is predicted that students who have experienced a self-concept enhancement intervention will display higher persistence compared to students who have not experienced these interventions.

Hypothesis 8.1 and 8.2 test the effects of the second and third intervention types used in the experimental study on student persistence outcomes. The second intervention is referred to as Student-Activated and requires participants of this Program group to self-activate assistance and support toward course continuance. Research indicates that intervention-based support services such as counselling (Seidman, 1991) and educational remediation support (Morris, 1994) are effective strategies for increasing student retention. Institutions of higher education typically provide these services to students to deal with diverse issues including dropping out (Doyle, 1989).

Most of the student educational support programs provided by the institution that is the focus of the current study are intervention-based strategies where services are generally initiated only at the request of the student. The Student-Activated intervention attempts to ensure the participants of this experimental group are sufficiently informed of and encouraged to utilise existing college support facilities available to them in the event of a persistence oriented problem (see Chapter 6 for further detail of the strategies for this sample group). The third intervention type is referred to as Institution-Activated, where the intervention for this Program group is managed and initiated by the college when a student is identified as at-risk of withdrawing from their program of study. Research suggests that intrusive-based intervention strategies (see Dreisbach, 1990; Kazazes, 1982) that attempt to manage student course participation are likely to increase student retention. Institution-managed strategies may include: activities that promote personal attention to the student (Kerka, 1995); the application of a manual group monitoring system coordinated by the teacher to ensure the earliest notice for intervention for those considering withdrawal (Glover & Wilcox, 1990; Rudmann, 1992); team building, class-based exercises examining esteem development, individual differences and learning styles, tutoring, and emotive issues related to study, family and work

Hypothesis 8.1 therefore examines the outcomes of the two Program groups who not only received the Base Treatment enhancement but who were also exposed to either the Student-Activated or Institution-Activated interventions, and contrasts persistence outcomes for these groups to a third Program group who were exposed to the Base Treatment intervention only. Hypothesis 8.2 contrasts the effects of the Program group receiving the Student-Activated treatment to the Program group exposed to the Institution-Activated intervention. It is envisaged that by the application of recent measurement, theoretical and statistical advances, and the utilisation of established guidelines for self-concept enhancement intervention, the effectiveness of the intervention designs will be identified. Hence the hypotheses therefore predict that by exposing students to further intervention treatments (i.e. Student-Activated and Institution-Activated interventions), substantially larger increases in student retention will result over and above those increases achieved by the Base Treatment intervention alone (i.e. exposure to in-class self-exploration exercises).

**Rationale for the Research Questions: The Impact of Self-Concept Enhancement and Attrition Interventions on Self-Concept**

**Research Question 9.1–2.** The researcher-devised model of attrition designed for the current study (see Chapters 2 and 6) postulates that student’s pre-course self-worth may be influenced by program attendance and may form the basis from which the student begins re-evaluating the self. Positive self-concept outcomes during this period of re-evaluation are shown by the model to be pivotal to the continuation of the student in their program of study, and conversely, should re-evaluation outcomes impact negatively on the student, the model proposes that lower self-worth levels may result in the student entering into a process of disengagement and subsequent withdrawal from their program of study.
Research Question 9.1 therefore investigates the changes in student self-concept levels as a result of participating in their program of study. Research Question 9.2 examines to what extent do three different types of self-concept enhancement/attrition interventions impact on facets of self-concept most relevant to the goals of those interventions, and whether intervention type and self-concept interaction outcomes vary as a function of student persistence. According to various self-concept researchers (see Craven, 1989; Craven, Marsh & Debus, 1991; Marsh, Richards & Barnes, 1986a; 1986b; Marsh & Richards, 1988) few enhancement studies have employed the latest advances in self-concept theory and research. The interventions utilised in the current study are based on the recommendations stemming from the analysis of historical pitfalls and recent advances in self-concept theory, measurement and research by Craven et al. (2003) to achieve a more effective approach to self-concept enhancement.

Based on the premise that intervention designs are more likely to be successful if the goals of the intervention target specific self-concept facets relevant to the intervention (e.g. Emotional Stability, General Esteem and Inter-Social self-concepts), the current study aimed to test various strategies to stabilise and improve student self-worth utilising the previously described interventions to improve student retention. It is envisaged that by the application of recent measurement, theoretical and statistical advances, and the utilisation of established guidelines for self-concept enhancement intervention, the effectiveness of the intervention designs will be identified.

Study 3: Student Self-Reported Factors Influencing Withdrawal—
A Qualitative Analysis

The Problem

What factors do students report as influencing their decisions to continuing in or withdrawing from their course of study? Do differences exist between withdrawn and continuing students regarding their personal perceptions of individual acumen and program performance, and their likelihood to seek assistance during withdrawal crisis? Does a student’s previous course participation, career planning, and personal reasons for course enrolment impact on persistence patterns? Does the level of
course difficulty present as a major contributor in non-persistence, and do students rationalise in order to maintain and protect levels of self-concept?

_Aims_

By utilising the latest advances in qualitative research methods, Study 3 aimed to further explicate students’ rationales for choosing to persist or withdraw from their course of study by:

1. Determining what factors TAFE students who have persisted or withdrawn from their course identify as influencing their decision to persist or withdraw;
2. Elucidating what differences exist between withdrawn and continuing students regarding their personal perceptions of individual acumen and program performance, and their likelihood to seek assistance during withdrawal crisis;
3. Examining the extent a student’s previous course participation, career planning, and personal reasons for course enrolment impact on persistence behaviour; and
4. Determining whether the level of course difficulty is a major contributor in non-persistence, and to what degree do students rationalise withdrawal in order to maintain and protect levels of self-concept.

_Statement of the Research Questions: Student Self-Reported Factors Influencing Persistence and Withdrawal_

_Research Question 1.1._ What factors do students report as influencing their decisions in regard to continuing in or withdrawing from their course of study?

_Research Question 2.1._ What differences exist between withdrawn students and continuing students regarding their personal perceptions of individual acumen and program performance, and their likelihood to seek assistance during withdrawal crisis?
Research Question 3.1. To what extent does a student’s previous course participation, career planning, and personal reasons for course enrolment impact on persistence patterns?

Research Question 4.1. Is the level of course difficulty a major contributor in non-persistence, and to what degree do students rationalise withdrawal in order to maintain and protect levels of self-concept?

Rationale for the Research Questions: Student Self-Reported Factors Influencing Persistence and Withdrawal

Study 2 investigated student attrition issues from a prediction perspective, utilising data gathered from research participants prior to withdrawal. A number of researchers suggest that no matter how theoretically and analytically sophisticated the quantitative methods employed in a study, an empirical approach “will never be capable of fully informing us as to how and why particular student outcomes occur. This is because such methods do not, and cannot, adequately capture the perspectives of the individuals whose outcomes are of concern” (Attinasi, 1991, p. 2). Study 3 therefore utilised qualitative methods to discern information from students regarding their withdrawal (or consideration of withdrawal for continuing students) following the dropout period. In the construction of this set of research questions, it was posited that an examination of theme (causes of dropout) similarities and differences between withdrawn participants and continuing students might provide an effective basis from which to draw conclusions. If dropout themes between the groups were similar, then the focus would be to determine why continuing students were able to overcome such problems that presented and why withdrawn students could not. Should the themes be different between the two samples, then it would be necessary to investigate the theme differences and why one set of theme difficulties leads to non-persistence while another set results in the continuation of studies.

Research Question 1.1. The research question has as its major focus determining factors that influence a student in their decision to withdraw (or consider withdrawing) from their program of study through semi-structured interviews with participants. Research has determined that first time students typically overestimate
their ability to adjust academically (e.g. see Gerdes & Mallinckrodt, 1994) and socially (e.g. see Hawken, Duran & Kelly, 1991) to college. The phenomenon of students attributing causes for failure to external sources has been identified in attribution theory generally (Weiner, 1972; 1974) and attrition research (Braxton, Brier & Hossier, 1988). Cullen (1994) suggests that students may offer “last straw” reasons for dropping out, however these may in fact be contrived and the least threatening to reveal. This research question compares the theme outcomes between withdrawn and continuing students who had considered dropping out to determine if last straw reasons are more prominent for the withdrawn student.

**Research Question 2.1.** This examination is designed to investigate the rationale of interviewees regarding their perceptions of academic ability and performance, specifically in reference to a time when they had either withdrawn for the non-persisters, or had had thoughts of withdrawing for the continuing students. Johnes (1990), reported that non-persisters felt guilty and ashamed of dropping out, and that while in some cases these feelings were replaced by a sense of relief when the decision to drop out later proved to have been the correct one, in other cases the feelings of shame and guilt changed to depression and lack of self-esteem. For continuing students it has been proposed that a “success breeds success” attitude is likely to develop (Kember, 1999). Conversely withdrawing students may engage in avoidance of assistance seeking behaviour in an effort to protect an already vulnerable self-concept. Hence, Research Question 2.1 was posed to explore the extent to which withdrawn and continuing students may differ in regard to personal perceptions of individual acumen, program performance, and likelihood to seek assistance during a withdrawal crisis.

**Research Question 3.1.** Research has established that career and goal planning by students can result in more positive retention outcomes (e.g. Slark & Nguyen, 1994; Gardner, 1990; Hodges, 1982). However, it is a typical strategy of higher education institutions to leave this activity to the discretion of the student, with no formal time dedicated to students for the planning of educational goals and career plans in mainstream courses. Research Question 3.1 was designed to investigate differences between continuing and withdrawn students’ extent of career and goal
planning, the impact of previous education and training, and any differences regarding their rationale for initially choosing to undertake further education.

**Research Question 4.1.** Although academic failure (Tinto, 1982) and the “actual” level of course difficulty (Schurr, Ellen & Ruble, 1993) have been identified in attrition research as a potential cause for student withdrawal, no reference to student perceptions of course difficulty and its relation to attrition could be located in the literature. The period of research for the current study (Term 1) occurs at a time when students have not as yet been issued with academic outcomes, and therefore “course failure” is not likely to be an implication. Decisions to seek out and utilise assistance for students who struggle with the academic content of TAFE programs are typically left to the student. Based on the premise that students use self-serving strategies to preserve public and private impressions of competency when risking failure (Craven et al., 1991), the research question investigates students’ perceptions of the level of course difficulty, and whether differences exist between continuing and withdrawn students regarding their response and the mechanisms they use to cope with such circumstances. Insight in this regard may further clarify the role of protecting self-concept in regard to withdrawal.

**Summary**

Three complementary studies comprised the present investigation. Study 1 was designed to identify a psychometrically sound multidimensional self-concept measurement instrument of salience to non-traditional TAFE students. Study 2 was designed to empirically test the impact of three different types of interventions on TAFE students’ self-concepts and persistence patterns. Study 3 was designed to identify factors that impact on TAFE students’ decisions to persist in or withdraw from their study utilising qualitative research methodology. The exposition of the aims for each of these studies will advance current theoretical and practical understanding of an area in which there is a paucity of sound research. Hypotheses and research questions were constructed to address the aims of the study and a rationale for these predictions and issues of concern was presented. In the following chapter, the methodology designed specifically to address these hypotheses and research questions is described.
CHAPTER 6
METHODODOLOGY

Introduction

The primary purpose of this chapter is to provide a comprehensive presentation of the methodology designed to successfully investigate the research questions and hypotheses of the study. Three distinct studies have been constructed to address the specified research questions and hypotheses appropriately. Study 1 involves testing the psychometric properties of (a) the Self Descriptive Questionnaire Version III (SDQ III), (b) an extended version of this instrument which incorporates additional scales of relevance to TAFE students, and (c) the short form version of the latter instrument in order to demonstrate the reliability and validity of this instrumentation applied to TAFE students. In addition, Study 1 tests the extent of agreement of TAFE student and significant others’ responses to the instrument to test convergent and discriminant validity. The purpose of Study 2 is to (a) evaluate the impact of the beginning student’s self-concept levels and the relation of these constructs to persistence behaviour, (b) examine the impact of student self-exploration on persistence behaviour, (c) expound and compare the influence of students’ personal intent, and their work, family and social circumstances to established outcomes in retention literature, and (d) assess and compare attrition intervention designs that are internally activated by the student or externally managed by the institution. The primary purpose of Study 3 is to explicate students’ rationales for choosing to persist or withdraw from their course of study utilising qualitative research methods.

In this chapter the methodology to be employed in all three studies is presented. A description of the measures employed, characteristics of the
participants, and the administration procedures for the research are discussed. Selected statistical analyses are described in relation to each of the hypotheses and research questions. In addition, the results of pilot studies that underpinned the development of a modified version of the SDQ III are presented. This chapter demonstrates that a strong and appropriate methodology has been employed to successfully address the research questions and hypotheses, and that powerful statistical tests have been conducted to identify the research findings.

Methodology Study 1: Self-Concept and Significant Other Agreement

Introduction

This section sets out the methodology for Study 1 which is designed to test the psychometric properties of the SDQ III in order to identify a psychometrically sound, multidimensional self-concept measurement instrument for use with a specialised population of part-time mature-age TAFE students. The methodology for testing the psychometric properties of the SDQIII-A, an extended and modified version of the original SDQ III, is presented. This new instrument is designed to (a) extend the original SDQ III by including another four domain-specific self-concept subscales particularly relevant to mature-age TAFE students, and (b) modify the original SDQ III and the four new scale extension by constructing a short version of the instrument through the selection of a subset of items used for each of the original 13 and four new scales. The final aspect of Study 1 describes the methods used to test the psychometric performance of a reduced version of the extended SDQIII-A instrument.

Participants

A total pool of 1,092 TAFE students (514 males and 578 females) enrolled in their first year of a TAFE course in a Sydney metropolitan TAFE participated in Study 1. The age of the participants ranged from 16 years to 61 years (with a mean age of 30.5 years and SD of 10.03 years).
A total of 44 business-oriented intact class groups were randomly selected to participate in Study 1. Of the 1,092 participants involved in the study, 91.3% were enrolled in their first year of various TAFE certificate and diploma courses, including the business vocational areas of Management, Marketing, Human Resource Management, Personnel Management, and Accounting, with the remainder enrolled in Travel and Tourism. Forty five percent (45%) of the sample group indicated that they were married, with the remainder being identified as separated/divorced, widowed or single. Of the sample group, 73.5% of the students were born in Australia, with only 14.3% of the remainder of the sample indicating that they had migrated here prior to 1980. Fifty two percent (52%) of the sample indicated that their socio-economic status (based upon their parents' education, income, and occupational status) during their secondary education was middle class, with another 41% nominating their socio-economic status as either lower-middle class or lower class. The majority of the respondents (75.6%) indicated that they had not obtained the New South Wales (NSW) Higher School Certificate or its equivalent.

**Instrumentation**

The focus of Study 1 is the development of the instrumentation to effectively measure the multidimensionality of self-concept constructs for TAFE students. The SDQ III (see Marsh, 1992 for a detailed discussion of the original instrument) assesses four areas of academic self-concept (Verbal, Mathematics, Problem Solving and Academic self-concept), eight areas of non-academic self-concept (Physical Ability, Physical Appearance, Same Sex, Opposite Sex, Parent Relationships, Religion, Emotional Stability, and Honesty self-concept), and General Esteem self-concept. Table 6.1 provides a brief description of each scale comprising the SDQ III.

The SDQ III also provides the opportunity to produce three total scores by combining the ratings of various self-concept subscales: Academic self-concept (the mean outcome of Verbal, Mathematics, Problem Solving and Academic self-concept), Non-academic self-concept (the mean of Physical Ability, Physical Appearance, Same and Opposite Sex, Parent Relationships, Religion, Emotional Stability, General Esteem and Honesty self-concept), and Total self-concept (the
average of all thirteen self-concept subscales). The following sections provide an
overview of each version of the SDQ III instrument utilised in the current study.

**SDQ III.** The SDQ III (Marsh, 1992) is one of a series of self-concept
instruments designed to measure multiple facets of an individual's self-concept. The
SDQ III was designed for use with older adolescents and young adults. The original
form of the SDQ III was developed based primarily on administration to university
students, hence its potential for transportability to other higher education college
environments has not been examined previously. The SDQ III is comprised of 136
items that measure 13 self-concept scales. The self-concept facets measured include
General Esteem, Mathematics, Verbal, Physical Ability, Physical Appearance,
relations with Same Sex and Opposite Sex, Parents, Honesty, Emotional Stability,
and Religion self-concept. Each scale of the SDQ III is comprised of 10 or 12 items.
Students are asked to respond to declarative statements (e.g. “I find many
mathematical problems interesting and challenging”) by utilising a Likert-type eight-
point scale. The scale weights for all items range from 1 to 8, reflecting a judgement
continuum from (1) "definitely false" to (8) "definitely true" (see Appendix A.1).

Each of the SDQ III subscales consists of an equal number of negatively and
positively worded questions (see Appendix A.2 to view the list of items for each of
the 13 self-concept scales). For the purposes of scoring the instrument, the weights
for each of the negatively worded items are reverse scored (Marsh, 1986a). The SDQ
instruments have been developed from strong empirical and theoretical bases (Marsh,
1989; also see Chapter 3), and the reliability and validity of this instrument with
university student populations has been demonstrated (Marsh, 1989). Marsh reports
that within-network research (i.e. the identification of the salient components of self-
concept and how they are related to each other) was the initial focus of SDQ
instruments, and that the main empirical tools to be used in this type of research
include reliability analyses, factor analyses and multitrait-multimethod analyses
(Marsh, 1989). Table 6.1 provides a brief description of the self-concept scales that
comprise the SDQ III.
Table 6.1

*Description of Scales Measured by the Self Descriptive Questionnaire III*

<table>
<thead>
<tr>
<th>Self-Concept Scale</th>
<th>Scale Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Self</td>
<td>A scale based on the Rosenberg (1965) self-esteem scale</td>
</tr>
<tr>
<td>Mathematics</td>
<td>Student perceptions of their mathematical skills/reasoning ability, and their enjoyment/interest in mathematics</td>
</tr>
<tr>
<td>Verbal</td>
<td>Student perceptions of their verbal skills/reasoning ability, and their enjoyment/interest in verbal activities</td>
</tr>
<tr>
<td>Academic</td>
<td>Student perceptions of their ability, and their enjoyment/interest in school in general</td>
</tr>
<tr>
<td>Physical Abilities</td>
<td>Student perceptions of their skills and interest in sports and physical activities</td>
</tr>
<tr>
<td>Physical Appearance</td>
<td>Student perceptions of their physical attractiveness</td>
</tr>
<tr>
<td>Problem Solving</td>
<td>Student perceptions of their ability at problem solving</td>
</tr>
<tr>
<td>Same Sex</td>
<td>Student perceptions of their interactions with same sex peers</td>
</tr>
<tr>
<td>Opposite Sex</td>
<td>Student perceptions of their interactions with opposite sex peers</td>
</tr>
<tr>
<td>Parents</td>
<td>Student perceptions of their interactions with their parents</td>
</tr>
<tr>
<td>Honesty</td>
<td>Student perceptions of their honesty and trustworthiness</td>
</tr>
<tr>
<td>Emotional Stability</td>
<td>Student perceptions of their emotional stability</td>
</tr>
<tr>
<td>Religion</td>
<td>Student perceptions of their religious or spiritual influences and standing</td>
</tr>
</tbody>
</table>
In her definitive review of self-concept instruments commissioned by the American Psychological Association, Byrne (1996) concluded that the SDQI (see Marsh, 1990b) was clearly the most validated self-concept instrument available, and that for more than a decade, it had been the target of a well-planned research strategy to firmly establish its construct validity as well as its other psychometric properties. The SDQ series are considered to be among the best multidimensional instruments available in terms of psychometric properties and construct validation research (Boyle, 1994; Byrne, 1984; Hattie, 1992; Wylie, 1989).

*Extended SDQ III.* For purposes of the current investigation, the original version of the SDQ III was extended in an attempt to access additional self-concept domains relevant to mature-age students who are generally working full-time and studying part-time. Table 6.2 provides a brief description of the four new subscales for the extended version of the SDQ III (see Appendix B.2 for a more detailed explanation of the scales and of the environments they are designed to measure).

Table 6.2

*Description of Four New Subscales Added to the SDQ III*

<table>
<thead>
<tr>
<th>Self-concept Scale</th>
<th>Scale Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work Value</td>
<td>The individual's perceptions of their personal value within their work environment and their job self-worth.</td>
</tr>
<tr>
<td>Inter-Social</td>
<td>The individual's perceptions of their personal interrelations generally.</td>
</tr>
<tr>
<td>Tertiary Relations</td>
<td>The student's perceptions of their interactions with others in the tertiary environment.</td>
</tr>
<tr>
<td>Tertiary Ability</td>
<td>The student's perceptions of their ability and self-worth within the tertiary environment.</td>
</tr>
</tbody>
</table>
The original design of the extended version of the instrument included another six self-concept scales comprising a further 64 questions (see Appendix B.1 for a breakdown of the scales, and Appendices C.1–2 for examples of the self and significant other extended versions of the SDQ III instruments). The final design of the SDQ III extension included only four new subscales comprising 42 items, bringing the total number of items for the extended SDQ III to 178.

In their original form, the abovementioned scales comprise between ten and twelve items each, and are designed to measure the self-concept of the participants in four major areas: the Work Environment; the Social Environment; and the Social and Tertiary Environments of the student (see Appendix B.2 for an overview of these environments).

**Reduced SDQ III.** A shortened version of the extended SDQ III instrument was developed to more specifically meet the needs of the college environment. Students participated in a study to condense the extended 178-item, 17 factor scales version of the extended SDQ III to almost half its length. The short version of the four new SDQ III subscales comprised 24 items (six items per scale; see Appendix B.3), bringing the total number of items for the short form version of the extended SDQ III to 102 items. The purpose of the reduced version of the instrument was to expedite application and processing of the instrument while at the same time maintaining the psychometric integrity of the extended version within acceptable parameters (see Appendices C.3–4 to view the reduced self and significant other versions of the SDQ III). The design of Study 1 is such that the criteria outlined for appropriate psychometric evaluation of short form construction by Smith, McCarthy and Anderson (2000), according to the further recommendations made by Marsh, Ellis, Parada and Richards (in press), have been complied with (see Chapter 3 for a more detailed discussion of the short form guidelines).

**Procedure for SDQ Instrument Administration**

The full version of the extended SDQ III comprised 178 items measuring 17 a priori self-concept subscales. Previous studies by the researcher had identified that the 13 self-concept factors developed by Marsh (1992) and the four new self-concept scales
met the stringent criteria required for SDQ instrument validation. In order to reduce the
time taken for students to complete the extended version of the SDQ III, and still
maintain the integrity and range of self-concept measures, it was necessary to reduce
the number of items that comprised the scales of the extended SDQ III. Initially the
performance of each item according to the factor loadings and alpha coefficients
produced in the original analyses for the extended SDQ III were examined, resulting in
a total of six items from each of the 17 subscales being identified for inclusion. The
reduced SDQ III was completed by participants of Study 1 during the initial weeks of
their first semester. Like the original and extended version of the SDQ III, the reduced
SDQ III is designed to be a self-administered, self-reporting instrument but requires less
than 30 minutes for the student to complete.

Prior to the commencement of the questionnaire, students were provided with
general instructions and examples on how to complete the questionnaire. They were
advised that the paper is "not a test" and that any of their personal attitudes, feelings
or opinions reflected in the document would remain completely confidential.
Following these instructions, the student was asked to provide essential personal
details (e.g. age, sex and marital status) and information regarding relevant family
history (e.g. the socio-economic status of parents during the respondents' high school
years; see Appendix C.3).

_Completion of the SDQ III Instruments by Significant Others_

Participants of Study 1 who completed the SDQ III (N = 1,092) were also
asked to have the instrument completed by the significant other person in their lives
(e.g. husband/wife, mother/father). The purpose of this procedure is to compare the
results of the questionnaires completed by students to those returned by significant
other people who the student believes to know them best to test the extent of self-
other agreement (see Appendix A.3 for tables describing the internal consistency and
self-other agreement outcomes on Australian and Canadian survey data investigated
by Marsh, 1989).

Stamped, self-addressed envelopes accompanied the questionnaires so that
the confidentiality of the responses from significant other participants could be
guaranteed. A response rate of 62% \((N = 677)\) was achieved for significant other respondents. Instructions directed to significant others requested that they complete the survey as if they were the student themselves, using their personal knowledge of their significant other as the basis of their responses (see Appendix C.2).

**Data Analysis for Study 1**

Hypotheses for this study proposed that the extended version of the SDQ III (Hypothesis 1.1 and 2.1), and the short modified SDQ III (Hypothesis 3.1) would be psychometrically sound measures of TAFE students’ self-concepts. In order to test the hypotheses, a series of analyses examining the psychometric properties of each version of the instrument was undertaken.

Firstly reliability was estimated. Reliability refers to the extent to which student responses are attributable to systematic sources of variance as opposed to errors in measurement (Borg & Gall, 1989). Marsh (1988) suggests the primary reason for estimating reliability in SDQ research is to examine the internal consistency of item responses on each of the SDQ scales. In the current study, the procedure used to estimate the reliability of each of the original 13 SDQ III subscales is the coefficient alpha estimate of reliability typically examined with the reliability procedure in SPSS (1999). Alpha is based on the assumption of a parallel model in which all items load equally onto the latent factor (Cohen, Swerdlik & Smith, 1992). The coefficient alpha is a logical lower bound estimate of the coefficient omega and provides a negatively biased estimate of reliability unless the assumption of parallel measures is met (Marsh, 1988).

The second major aspect of analyses utilized a series of Confirmatory Factor Analyses (CFA) where the raw data for each instrument were separately used as input to PRELIS (Joreskög & Sorböm, 1989), and a covariance matrix was produced for each instrument that was subsequently analysed using LISREL. With CFA, the researcher postulates relations between the observed measures and the underlying a priori factors. Based on a culmination of theory and empirical research, the researcher then tests the ability of this hypothesized structure to fit the data statistically (Byrne, 1998). A CFA was subsequently conducted for each version of
the SDQ III instruments to assess the multidimensionality of self-concept responses. For the original SDQ III, a 13-factor model was proposed with factors corresponding to the 13 subscales that the SDQ III was designed to measure (see Table 6.1). Similarly a 17-factor model was proposed for the extended SDQ III (see Table 6.2 for the four scale extensions), and a 17-factor model for the shortened modified version of these instruments. In these models, each measured variable was permitted to only load on the one factor that it was proposed to reflect. Factor correlations and uniquenesses (residuals for each measured variable) were estimated, but correlations among the uniquenesses were constrained to be zero.

In keeping with prior SDQ research (e.g. Marsh & Hocevar, 1985; Marsh, Craven & Debus, 1991), and as recommended in the SDQ III test manual (Marsh, 1989), confirmatory factor analyses utilised item-pair scores. This procedure requires that the first two items in each scale be averaged to form the first item pair, the following two items are then averaged to form the second pair, and continued until the entire scale is item-paired. Hence the 136 items of the original SDQ III were subsequently reduced to 68 item pairs, the 178 extended SDQIII items were reduced to 89 item pairs, and the 102 items for the short form version of the latter instrument were reduced to 51 item pairs. SDQ researchers (Marsh, 1988; Marsh & O’Neill, 1984) suggest that analysis of item pairs instead of individual items is advantageous because the item pairs tend to be more reliable, to be more normally distributed, and to have less idiosyncratic variance than do individual items. Further, Tanaka (1987) recommends that there be at least five times as many participants as variables in confirmatory factor analyses, and using item pairs instead of individual items ensures that this psychometric guideline is met.

Whether the fit of the a priori model to the data is sufficient enough to support the model is determined by evaluating the goodness of fit indices for alternative models. CFA and Structural Equation Modelling (SEM) were conducted with LISREL (version 8.54; Joreskog & Sorbom, 1993) using maximum likelihood estimation (for further discussion of SEM, see Bollen, 1989; Browne & Cudeck, 1993; Byrne, 1998; Schumacker & Lomax, 1996). Consistent with current practice, the root mean square error of approximation (RMSEA) to evaluate goodness of fit is emphasised, but following Marsh, Balla and Hau (1996; Marsh, Balla & McDonald,
1988; McDonald & Marsh, 1990) the Tucker-Lewis index (TLI) and the relative noncentrality index (RNI) are also considered as well as presenting the Normal Theory chi square test statistic (the default in LISREL) and an evaluation of parameter estimates. RMSEA values of less than .05 are taken to reflect a close fit, while RMSEA values less than .08 suggest a reasonable fit. The TLI and RNI vary along a zero to one continuum in which values greater than .90 and .95 are typically taken to reflect acceptable and excellent fits to the data. The RNI contains no penalty for a lack of parsimony so that improved fit due to the introduction of additional parameters may reflect capitalisation on chance, whereas the TLI and RMSEA contain penalties for a lack of parsimony (Marsh et al., 1996).

Model comparison is also facilitated by positing a nested ordering of models in which the parameter estimates for a more restrictive model are a proper subset of those in a more general model (for further discussion see Bentler, 1990). Under appropriate assumptions, the difference in chi square between two nested models has a chi square distribution and can therefore be tested in relation to statistical significance. This feature of the chi square test statistic is particularly useful in the evaluation of tests of invariance across different groups (see below). Although tests of statistical significance and indices of fit can aid in the evaluation of the fit of a model, there is ultimately a degree of subjectivity and professional judgment in the selection of a best model.

Hypotheses 5.1–2 proposed that there would be consistently high self-other agreement on matching scales, supporting the convergent and discriminant validity of the self-concept ratings (i.e. convergent validities for each trait would be consistently higher than correlations between that trait and other traits). In order to test these hypotheses, tests of invariance were conducted. When the researcher has parallel data from more than one group (i.e. student responses and significant other responses) it is possible to test the invariance of the solution for each group by requiring any one, any set, or all parameter estimates to be the same in the two groups. Tests of factorial invariance (see Bollen, 1989; Jöreskog & Sörbom, 1993; Marsh, 1994) traditionally posit a series of partially nested models. The end-points of this series are the least restrictive model with no invariance constraints and the most restrictive (total
invariance) model with all parameters are constrained to be invariant across all groups. A minimal condition of factorial invariance is the invariance of the factor coefficients. For the purposes of this study, analyses were conducted on separate covariance matrices constructed for TAFE student and significant other participants. A number of models were tested in which aspects of the factor structure were systematically held invariant across groups. Fit indices were assessed when elements of these structures were constrained.

Multitrait-multimethod (MTMM) matrices were constructed to further examine the convergent and discriminant validity of the 17 self-concept factors of the long and short form versions of the SDQIII-A completed by students and their significant others. According to Marsh (1989), convergent validity is inferred from substantial correlations between self-ratings and inferred-ratings on matching self-concept traits, while discriminant validity provides a test of the distinctiveness of self-other agreement and of the multidimensionality of the self-concept facets; it is inferred from the lack of correlation between non-matching traits. A MTMM matrix therefore is a matrix of correlations among two or more traits measured by two or more methods. According to Pedhazur and Schmelkin (1991, p. 669), the “CFA approach to the analysis of the MTMM matrix is the most versatile and most useful”.

Various other approaches to the analysis of the multitrait-multimethod matrix have been proposed (see Schmitt & Stults, 1986; Jöreskog & Sörbom, 1993; Marsh, 1994), however, by utilising the CFA approach “one can study other things, the effects of traits, methods, and correlations among them” (Pedhazur & Schmelkin, 1991, p. 77). Earlier guidelines to the MTMM procedure developed by Campbell and Fiske (1959) attracted substantial criticism as being limited, ambiguous and based on questionable assumptions (Alwin, 1974). Marsh (1989; 1994) indicated that many of the objections to the original Campbell and Fiske guidelines can be overcome by conducting a CFA on multiple indicators of each trait-method combination. The evaluation of the fit of the model provides a test of whether the factors are well defined. The resulting MTMM is a matrix among latent factors that have been correlated for measurement error.
In the present investigation, this meant conducting a CFA on multiple indicators (item parcels) used to infer responses to 34 latent factors; 17 factors based on self-responses and 17 matching factors based on corresponding responses by significant others. It is then possible to apply the traditional Campbell and Fiske guidelines to this 34 x 34 correlation matrix among latent correlations. Of particular relevance are the 17 convergent validities—correlations between matching factors based on self-responses by students and those based on responses by significant others. These 17 convergent validities are the basis of inferring support for convergent validity of the student self-concept rating in relation to responses by significant others. The comparison of these 17 convergent validities with those of the other 544 correlations in the matrix of latent correlations is the basis of inferring support for convergent validity. In particular (see Marsh, 1989, for further discussion), convergent validities (monotrait-heteromethod, MTHM, correlations) should be consistently higher than correlations between responses to different factors measured by different methods (heterotrait-heteromethod, HTHM, correlations) and higher than correlations between responses to different factors measured by the same method (heterotrait-monomethod, HTHM, correlations).

The MTMM matrix for the current study will produce a total of 544 possible correlation coefficient combinations. The first test therefore will examine the heterotrait-heteromethod relations where the convergent validity of the self-concept factor should be highest among the 544 possible comparisons between the convergent validity and another correlation in the same row or column of the square block of coefficients. The second test examines the heterotrait-monomethod relations where the convergent validity of the self-concept factor being investigated should be the highest among the 544 possible comparisons between a convergent validity coefficient and other correlations in the same row or column of the two triangular blocks.

Support for convergent validity requires all 17 convergent validities to be statistically significant and substantial. Support for discriminant validity requires the 17 convergent validities to be systematically higher than HTHM and HTMM comparison correlations.
Methodology Study 2: Self-Concept Enhancement and Attrition Intervention

Introduction

Study 2 has been developed in response to aspects of the researcher-devised theoretical model of mature-age student attrition developed specifically for the current study (see Chapter 2 for further detail of the model). The purpose of Study 2, therefore, was to (a) test within the TAFE environment the predictive value of factors posited in past attrition literature to predict student persistence, (b) test the impact of attrition intervention designs that are internally activated by the student or externally managed by the institution on TAFE students’ persistence patterns, and (c) elucidate to what extent participants who have experienced an intervention and who choose to persist in TAFE studies display higher self-concept facets compared to students who have experienced an intervention and who choose to withdraw from TAFE studies.

Instrumentation

The reduced self-concept instrument developed in Study 1 was utilised in Study 2. In addition, a number of other instruments were developed for application in the current study, including: the Adult Student Acumen Test (AdultSAT)—an academic type indicator to use as a pre-test measure; the LifeStyles Survey—an instrument to collect relevant demographic, socio-economic and other non-academic student related information.

Pilot studies were conducted for the above instruments, and examples and psychometric outcomes for each can be found in the Appendices F.1–2 for the AdultSAT, and Appendices G.1–2 for the LifeStyles Survey. The following provides a brief description of the AdultSAT and LifeStyles Survey.

**Adult Standard Acumen Test (AdultSAT).** The AdultSAT is described as an instrument that attempts to measure various aspects of the student’s general knowledge and ability, attributes considered to be generated mainly from the individual’s personal, social and business experience rather than through exposure to academic programs only. Table 6.3 describes each of the AdultSAT facets.
The long form version of the instrument comprises 50 items that attempt to examine six academic areas, including Math, English, Problem Solving, Local and Extended Knowledge, and General Science. Items of the AdultSAT are presented in multiple-choice format where students are required to respond to a question by selecting a response from four alternative answers (e.g. either A, B, C, or D). The original instrument is presented in the form of a 13-page A4 booklet, accompanied by a separate Answer Sheet (see Appendix F.1–2).

Table 6.3

Description of Adult Student Acumen Test Scales

<table>
<thead>
<tr>
<th>Scale</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math</td>
<td>Math items are basic in their level of complexity, ranging in content that is covered in the Year 7 through Year 10 secondary school grades.</td>
</tr>
<tr>
<td>English</td>
<td>English items centre on grammar and communication issues, and would again meet the material covered in the Year 7 through Year 10 secondary school grades.</td>
</tr>
<tr>
<td>Problem Solving</td>
<td>Items are generally mathematically based and would be comparable to the material covered in the Year 7 through Year 10 secondary school grades.</td>
</tr>
<tr>
<td>Local Knowledge</td>
<td>Items focus on basic economic, social and demographic issues localised to the Australian setting.</td>
</tr>
<tr>
<td>Extended Knowledge</td>
<td>Items are similar in content to those presented in the Local Knowledge domain, however, the Extended Knowledge scale comprises items aimed at a higher level of acumen.</td>
</tr>
<tr>
<td>General Science</td>
<td>Items examine the students’ knowledge of a broad range of the sciences, and include a number of items which are based on logic.</td>
</tr>
</tbody>
</table>

Participants were allocated 25 minutes to complete the test, however, most participants (95%) generally finished the instrument within a 15-minute period. The
data collection phase for this aspect of the study spanned over the first two weeks of the college semester, with new students completing the instrument at the commencement of class sessions.

**Student LifeStyles Survey.** The Student LifeStyles Survey was locally developed to record a broad range of student perceptions, situations and expectations relating to their participation in their course of study. The Survey is designed to provide evidence of the effects of other factors identified in attrition literature to have the potential to impact on a student’s intention to withdraw from a course of study. Table 6.4 presents the LifeStyles survey items and their descriptions (also see Appendix G.2 for an overview of outcomes for a pilot study of the instrument).

Table 6.4

*Description of the Student LifeStyles Survey Variables*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family Life</td>
<td>A measure of students’ perceptions regarding the impact of their course participation on their family life</td>
</tr>
<tr>
<td>Work Life</td>
<td>A measure of students’ perceptions regarding the impact of their course participation on their work situation</td>
</tr>
<tr>
<td>Social Life</td>
<td>A measure of students’ perceptions regarding the impact of their course participation on their social life</td>
</tr>
<tr>
<td>College Life</td>
<td>An overall measure of students’ perceptions regarding the impact of interactions within the college environment</td>
</tr>
<tr>
<td>Course Cost</td>
<td>A measure of students’ perceptions regarding the financial costs of their participation in the course of study</td>
</tr>
<tr>
<td>Study Time</td>
<td>A measure of students’ perceptions regarding the demands of study time for their course of study</td>
</tr>
<tr>
<td>Finish Course</td>
<td>A measure of students’ expectations regarding their likelihood of completing their course of study</td>
</tr>
</tbody>
</table>
For the items that measure the student's perceptions regarding the impact of their course participation on their family, work, and social circumstances, a 5-point Likert type scale (where (1) represents a "major negative impact" and (5) represents a "major positive impact") is used. A similar scale was also used to measure student perceptions regarding their interactions with the college, course costs and study time demands. In regard to self-prediction of course completion, students were asked to respond to a declarative statement (i.e. "I believe I will complete this course.") by nominating a number on an eight-point scale ranging in weightings from 1 to 8, reflecting a judgement continuum from (1) "definitely false" to (8) "definitely true". The LifeStyles instrument is designed to be applied on a number of occasions to generate a statistical basis from which to measure changes in students' perceptions over time. The Survey is presented to the student in a 6 page, A4 size booklet, with a separate Answer Sheet (see Appendix G.1).

Participants and Sample Group Populations

A total of 532 students participated in Study 2. Ages for the entire sample ranged from 18 to 56 years, with a mean age of 32.2 years (\(SD=10.5\) years). Sample groups for the experimental model comprised a 1 Comparison by 3 Program group design. Table 6.5 provides an overview of the sample groups, abbreviations used to describe each sample, and the number of students comprising each group.

Table 6.5
Overview of Sample Groups for the Experimental Intervention

<table>
<thead>
<tr>
<th>Program Sample Groups</th>
<th>Abbrev.</th>
<th>Number of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Treatment Only</td>
<td>Program 1</td>
<td>105</td>
</tr>
<tr>
<td>Self-Activated Treatment Extension</td>
<td>Program 2</td>
<td>124</td>
</tr>
<tr>
<td>Institution-Activated Treatment Extension</td>
<td>Program 3</td>
<td>95</td>
</tr>
<tr>
<td></td>
<td>Sub-total</td>
<td>324</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Comparison Sample Group</th>
<th>Abbrev.</th>
<th>Number of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Treatments Contrast</td>
<td>Comparison</td>
<td>208</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>532</td>
</tr>
</tbody>
</table>
Intervention Designs for Experimental Sample Groups

The intervention designs applied in the current study were derived from a previously developed theoretical model of an integrated institution-wide retention plan developed by the writer in preparation for the current study (see Appendix J.1 for a detailed overview of the retention plan). The following sections provide an overview of each of these interventions.

New Student Support Program. All intervention designs utilised in the current study form part of the New Student Support Program (NSSP). Each intervention type was written into the communication module undertaken by the student during the first semester of the course program. Although a more detailed description of the design, application and procedure for each of the interventions is provided in the following sections, a short overview at this point may enhance understanding.

The first intervention type of the New Student Support Program comprises two basic levels. Level I is referred to as the Base Treatment intervention and is simply the application of the instruments used to measure student self-concepts and various other student facets, together with general discussion of any self-concept issues to arise from the application of those instruments. Level II also forms part of the first intervention type of the NSSP, however, the strategies employed have a far more intensive focus on student self-exploration, requiring students to participate in numerous class exercises and discussion regarding self-concept/non-persistence and their relation to: esteem building; feelings, emotions and stress; individual differences; and team building.

The second intervention type of the NSSP is referred to as the Student-Activated program, where the most critical aspect of the intervention is that the student must initiate the necessary action to access existing college support services and facilities in order to gain assistance with their persistence related problems. The third intervention type is referred to as the Institution-Activated program, which
comprises a set of strategies that are initiated by faculty management to intercede a student identified as a potential dropout.

At the time of the research undertaking, there were eighteen nationally accredited communication modules, and most Business Services' students were required to complete at least 1 and as many as 3 such modules during their first semester program. The student/teacher ratio for the communication modules remains at 15:1, and face-to-face teaching hours for the entire suite of communication modules ranges between 15 and 40 hours. The communication modules most typically delivered by teachers in the experimental intervention programs for the current study made provision for an implementation period that on average amounted to 54 hours, however, most teachers were generally able to complete the student learning outcomes identified in the syllabi with a minimum of 10 and a maximum of 15 hours made available to the current research. Activities designed to encourage student self-exploration were constructed by the researcher from the available literature and were written into the module syllabus for implementation during the allocated hours for each of the communication modules undertaken. Table 6.6 provides a visual map of the progressive building of interventions for the sample groups.

Table 6.6

*Summary of Intervention Applications for the Comparison and Program Groups*

<table>
<thead>
<tr>
<th>Sample Groups</th>
<th>NSSP Base Level I</th>
<th>Activated Interventions</th>
<th>NSSP Base Level II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comparison</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Program 1</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Program 2</td>
<td>Yes (Student-Activated)</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Program 3</td>
<td>Yes (Institution-Activated)</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*Note. NSSP=New Student Support Program. Yes or No indicates whether students of a particular sample group were exposed to the listed intervention types.*
In the following sections each of the sample groups described in Table 6.6 is presented, together with details of the interventions to which they were exposed.

**Comparison group.** The Comparison group comprised 19 randomly selected intact classes, totalling 479 students. Of these, 22.3% (107) elected not to participate in the study, and 11.6% (43) of the participants were declared as a Non-start status (i.e. enrolled in a program of study but did not attend classes; see Chapter 2 for more detail) and were subsequently excluded from the experimental data. Of the 329 participants remaining, a further 13.8% (42) failed to undertake the pre-test measure, and 27.5% (79) did not adequately complete the pre-test instrument and were therefore excluded from the data. A total of 208 students therefore comprised the Comparison sample, of which 57.2% of the group were female, with an overall mean age for the group of 29.4 years ($SD = 9.5$ years).

**Program Groups.** The Base Treatment set of three Program groups comprised 28 intact classes (totalling 486 students) which were randomly assigned to one of three Base Treatment Program groups (i.e. Base Treatment only, Student-Activated or Institution-Activated Treatment programs). Of these, 8% ($n = 39$) of the participants were declared as having No-start status and were subsequently excluded from the experimental data. All students in this set of experimental groups were exposed to the complete battery of instruments for Study 2 (Base Treatment Level I), both at the beginning (Time 1—the first week of TAFE courses) and at the end of the research period (Time 2—between the 6th and 8th week and before the completion of first term). Of the 447 participants remaining in the three Base Treatment Program groups, a further 13.9% ($n = 68$) chose not to participate in the study, and 11.3% ($n = 55$) of participants failed to adequately complete or provide correct identification on the full complement of instruments applied in the study and were therefore excluded from the data.

Although instrument completion and discussion with participants of issues related to self-concept formed the basis of the major data collection for the study, the application of the instrumentation was also considered a key component of the intervention programs. The following sections describe the parameters of the three Base Treatment Program sample groups.
Program 1 (Base Treatment only). Cohorts in this sample group were exposed to all instrumentation (Base Treatment Level I), both at the beginning and at the end of the research period, but did not receive any form of Treatment Extensions (i.e. a Student-Activated or Institution-Activated Treatment Extension program). The Base Treatment only group (Program 1) comprised a total of 105 students at the beginning of the research period. Sixty four percent of the group were female, with an overall mean age for the sample of 30.3 years ($SD = 10.2$ years). Program group 1 (Base Treatment only program) was exposed to the Level I self-concept exploration aspects of the NSSP only.

Program 2 (Student-Activated Treatment Extension with Base Treatment Level I). The Student-Activated Treatment Extension plus Base Treatment program sample (Program 2) comprised a total of 124 students at the beginning of the research period. A total of 60.5% of the group was female, with an overall mean age for the sample of 29.8 years ($SD = 10.2$ years). The most important aspect for this Program group of classes is that before support can be provided to students, they must self-initiate the necessary action to access existing college support services and facilities. Program group 2 classes, therefore, receive the Level I Base Treatment from the NSSP, plus the following Student-Activated Treatment Extension strategies:

1. The release of an information flyer to students at the beginning and mid-trial points outlining existing student support (e.g. study skills and tutorial support, childcare etc.) and counselling services at the College (see Appendix D.1);
2. A 12 hour counselling hotline for students intending to withdraw from their course of study, outlining available options for the student and providing access and direction to further self-initiated assistance;
3. A re-entry program designed for students who initiated contact to continue in their course of study after a period of extended absence from classes (i.e. incurring absences up to three weeks in duration).
4. Apart from their participation in the distribution of the information outlined above, teachers of the Student-Activated Treatment Extension intervention groups were instructed not to provide any other support to students than that
which they would generally do during the course of their normal teaching practice.

5. The provision of regular group exercises and discussion sessions to examine self-concept and related issues (see Appendix D.3 to view the teachers' guide).

Program 3 (Institution-Activated Treatment Extension with Base Treatment Levels I and II). The Institution-Activated Treatment Extension plus Base Treatment Levels I and II program group (Program 3) comprised a total of 95 students at the beginning of the research period. A total of 54.7% of the group was female, with an overall mean age of the sample of 32.7 years ($SD = 9.8$ years). Unlike the Student-Activated Treatment Extension design, the Institution-Activated Treatment Extension program did not require the student to initiate an intervention activity. A manual system of monitoring student participation and persistence was managed and maintained by the researcher and participating teachers, where should a persistence problem be identified action would be undertaken to contact the student for the purpose of intervention. Cohorts of the Institution-Activated Program 3 group of classes therefore received: the full battery of research instruments at the beginning and end of the research period together with discussion of self-concept related issues (Level I Base Treatment); the Institution-Activated intervention program; and the esteem building supplement of the New Student Support Program (NSSP Base Treatment Level II). The following strategies therefore comprised the interventions for the Institution-Activated Program 3 participants:

1. The establishment of a team building and peer support network to ensure that each member of the group is at all times accessible to all other group participants (e.g. for the purposes of consultation on team projects; discussion on the content of assignments, examinations etc.; the exchange of strategies for improved study techniques; arranging for course notes to be taken during absences; organisation of social activities outside college hours etc.);

2. Discussion sessions examining issues such as esteem building, individual differences, learning styles, and emotive issues related to study, family and work circumstances (see Appendices D.4–6 to view the teachers' guides);
3. The application of a manual group monitoring system (coordinated by the teacher) to ensure the earliest notice for intervention for those considering withdrawal;

4. The provision of a greater level of teacher input (e.g. increased levels of student feedback, formalised times for access to the teacher for student consultation both at the institution and after-hours via a telephone hotline);

5. Ensuring that students are provided with organised appointments with appropriate counselling services upon notification of an intention to withdraw (including the establishment of a verbal contract regarding the appointment); and

6. The provision of regular group exercises and discussion sessions to examine self-concept and related issues (see Appendix D.3 to view the teachers’ guide for the management and delivery strategies for the session).

**Summary.** Sample groups for the experimental interventions comprise one Comparison (contrast) group and three Program treatment groups. The Comparison sample group received no form of intervention or treatment. The three Program intervention groups were each exposed to a Base Treatment (Level 1) program that comprised self-concept exploration exercises and discussion during class. The type of services included in intervention designs for the Base Treatment only Program 1, the Student-Activated Program 2 and the Institution-Activated Program 3 groups are similar, however only the method for the advising and utilisation of these services differs between the samples.

For the Base Treatment only and Student-Activated Program 2 participants, the identification of a persistence related problem is left to the student as is the seeking out and accessing of college support services to assist them in dealing with their issues. Student-Activated Program 2 participants received additional advice regarding the types of college services available to assist with a persistence-related problem (e.g. information flyers), support (access to a 12-hour counselling hotline) and notification of a re-entry option should they withdraw from their program of study.
For the Institution-Activated Program 3 cohort, a modified account of what existing college services (e.g. counselling) would provide for the student seeking assistance forms part of the intervention design for this group presented during class discussions (e.g. encouraged to consider alternative attendance patterns, reduce program loads, initiate peer support network etc. should a persistence crisis occur). A student identified as at-risk of dropping out for Program 3 participants is approached by the faculty advisor and formal processes are activated for the student to access further college services as required. In the absence of appropriate computer systems to manage the application of the interventions (an important pre-requisite of the model for broad application), a manual system of monitoring student progress and outcomes was applied.

Procedure

At the beginning of the research period (Time 1), the following instruments were completed by Program group participants:

1. Adult Standard Acumen Test (AdultSAT);
2. Modified shortened version of the SDQ III;
3. Significant other version of the short form version of the SDQ III; and
4. LifeStyles Survey.

At the end of the research period (Time 2), the following instruments were completed by Program group participants:

1. The modified short form version of the SDQ III; and
2. LifeStyles Survey.

Figure 6.1 provides a diagrammatic representation of the ordering and structure of the quantitative applications, the intervention designs and the qualitative research events for each of the sample groups.
Figure 6.1. Graphical representation of the structure of quantitative, intervention and qualitative events for each of the sample groups comprised in the experimental intervention
Figure 6.1 indicates that the first and second round measures for continuing students were completed prior to and following the application of the interventions. Students who had withdrawn from their course subsequently to Time 1 were mailed Time 2 instruments within three weeks of their last class attendance, with follow-up mail-outs for non-returns occurring up to three times. Following their failure to respond to a third mail-out, withdrawn students were contacted by telephone by the researcher to participate in a structured interview based on an interview schedule (see Appendices H.1–2) that attempted to elucidate students’ rationales for withdrawing (see the following qualitative section addressing Study 3).

Participants of the sample groups were business studies students at a Sydney metropolitan higher education college undertaking one of the suite of Business Services’ advanced certificate or diploma courses at the facility (e.g. Management, Marketing, Logistics Management, Accounting, Human Resource Management, Purchasing and Supply). The major data collection period occurred throughout the first semester following the enrolment of participants. During the initial enrolment phase over 4,000 students were placed into classes (with no specific placement criteria other than their selected course of study). Intact classes were then randomly assigned to participate in any one of the Comparison or three Program groups. Each sample group comprised between 6 and 8 intact classes.

Follow-up data regarding students participating in this aspect of the study was subsequently collected over the ensuing three semesters. For each of the groups involved in the study, measures collected during the research period included the post score outcome (i.e. the mean score of the subject(s) completed by the student during the research period), and the Attrition Status of the student (i.e. whether the student continued in, or withdrew from their course of study over the following three semesters) at the end of each semester.

*Teacher Participant Training*

A total of eighteen teachers were randomly assigned to the Comparison or Program groups (see Appendix D.2 for further detail of teacher participation and preparation). A series of four 3-hour workshops were conducted by the researcher for
teachers selected for participation in the study, where they were instructed on the strategies and implementation procedures for each of the Comparison and three Program group interventions. A selection of specialist teachers with substantial qualifications in psychology participated in the teacher workshops to examine issues related to self-concept and other self-exploratory exercises for delivery to the students in the three Program groups. Teachers were instructed on discussion techniques to focus on and convey issues of relevance to the intervention, including: the implications of self-concept as a mediating variable to other desirable outcomes (i.e. persistence, achievement, self-worth); the importance of the construct in itself (i.e. maintaining a positive and stable self-concept across academic and social facets, in the social, work and college environs); important and relevant outcomes regarding the construct as evidenced in past research; maximising internally focused feedback regarding the interpretation and implications of individual student outcomes generated from completion of the instruments. Teachers were also advised of the methods to be applied in order to obviate problems such as diffusion effects occurring between the student sample groups (teachers remaining aware of the differing levels of intervention between the Comparison and the three Program groups), and the methods for monitoring and reporting student attendances, behaviour patterns of concern, and so forth.

Analysis of Differences in Student Demographic, Background and Time 1 Self-Concept Measures for Comparison and Program Groups

An integral aspect of Study 2 was to compare the participant detail of each of the three Program groups and the Comparison sample to ensure each group was statistically similar within acceptable psychometric parameters. Data from a total of 26 variables collected at the commencement of the research period were submitted to various analyses to determine any differences between the sample groups, including a standardised test score, eight student demographic and background variables, and 17 self-concept scores. Tables detailing the coding and various student statistics for these variables can be viewed in Appendix E.1. For the analyses, contrast models were created in order to compare the three Program groups for differences.

The first contrast compares the mean outcomes achieved by Program 1 for a specific variable and contrasts this outcome to means of the same variable achieved for
Program groups 2 and 3, while the second contrast compares the mean of Program 2 to Program group 3. The following sections provide an overview of the outcomes of the test of similarity between the sample groups.

**Group differences on AdultSAT measures.** The Adult Student Acumen Test (AdultSAT), a standardised test instrument developed specifically for the current study, was applied at the beginning of the research period to the participants of the three Program intervention and the Comparison sample groups \((N = 531)\). Participant scores ranged from 28 to 98, with 207 students in the Comparison Group (mean score = 70.53, \(SD = 13.20\)), 87 in Program Group 1 (mean score = 70.17, \(SD = 11.26\)), 106 in Program Group 2 (mean score = 71.09, \(SD = 9.85\)), and 83 students in Program Group 3 (mean score = 69.35, \(SD = 11.37\)). An analysis of variance procedure of the AdultSAT scores for each of the sample groups \((N = 483\) overall mean score = 70.39, \(SD = 11.86\)) with the age and gender of the participants used as covariates, produced a non-significant outcome regarding group differences \((df = 2, F \text{ Ratio} = 1.508, NS)\).

Thus results suggest that the Comparison and three Program groups are comparable in mathematic and verbal ability, in problem solving ability and in general knowledge facets (see Appendix F.2 for further discussion of the AdultSAT scales).

**Group differences in age and gender.** The Comparison group comprised 208 students of which 57.2% were female, with an overall mean age for the group of 29.4 years \((SD = 9.5\text{ years})\). The Program 1 group (No Treatment Extension with Base Enhancement) consisted of 105 subjects of which 64% were females, with an overall mean age for the group of 30.3 years \((SD = 10.2\text{ years})\). The Program 2 sample (Self-Activated Treatment Extension with Base Enhancement) comprised 124 subjects of which 60.5% were female, and an overall mean age for the Group of 29.8 years \((SD = 10.2\text{ years})\). The Program 3 group (Institution-Activated Treatment Extension with Base Enhancement) consisted of 95 students, of which 54.7% of the group were female, and an overall group mean age of 32.7 years \((SD = 9.8\text{ years})\). Multivariate analysis of variance of the three Program groups indicated that differences between the four sample groups for the age \((F \text{ Ratio} = 1.845, NS)\) and gender \((F \text{ Ratio} = 2.68, NS)\) variables were non-significant.

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**Group differences in student background measures.** Because the Base Treatment Program groups completed the full compliment of instruments at Time 1 (the beginning of the research period) and Time 2 (the end of the research period) data collection points, data for a more diverse range of variables were able to be collected and analysed for the three Program groups. Tables describing item coding and category percentages for each of the background variables can be viewed in Appendix E.1 Any data presented in the following sections for the Comparison group has generally been collected from the TAFE mainframe student record system.

In regard to the number of years completed by students participating in the data collection, Program Group 1 had 93.4% enrolled in their first semester of their first year of a two-, three- or four-year part-time course, while Program Group 2 had 95.6% and Program Group 3 had 95%. TAFE mainframe data base information indicated that 96.6% of the Comparison group were enrolled in their first semester of a Level II, IV or VI mainstream course. Multivariate analysis of variance of the Comparison and three Program intervention groups indicated that the differences between the groups were non-significant ($F$ Ratio = 0.857, $NS$). Discussion regarding the MANOVA procedure is presented at a later point in the chapter.

MANOVA analyses were used to determine differences between the groups regarding the country of birth of the student, and of the student’s mother and father. Fathers of the Program groups were similar in their place of birth characteristics. Fifty three percent of the fathers in Program Group 1 were born overseas, while 56.5% of fathers for the Program Group 2 cohorts and 47.3% of fathers for Program Group 3 were born overseas ($F$ Ratio = 0.501, $NS$). Mothers of the three Program groups reflected similar results to those outlined above. Fifty five percent of the mothers of Program Group 1 cohorts were born overseas, with 53.2% and 41.8% of mothers from Program Groups 2 and 3 respectively being born overseas ($F$ Ratio = 0.130, $NS$). Student nominations for country of birth in the three Groups approximated around one third of each sample group being born overseas ($F$ Ratio = 0.449, $NS$).

Respondents were also asked to identify their parents’ occupation during the participant’s secondary school years. The highest percentages identified in the fathers’ occupation classification was “semi-skilled trade” (overall mean percentage = 38.7%),
while for the mothers of respondents, the highest occupation classification percentage was “domestic” (overall mean percentage = 49.3%). MANOVA analyses was used to determine any significant differences between the groups regarding the student identified occupations of their father (F Ratio = 3.070, NS) and mother (F Ratio = 0.419, NS), with both variables resulting in non-significant outcomes.

Students were asked to identify the highest level of education achieved by their parents. The highest percentages for both parents appeared in the compulsory secondary classification (overall mean percentage = 49.3% for fathers, and (overall mean % = 49.3% for mothers). To determine any significant differences between the Program groups regarding the education levels achieved by the student’s parents, MANOVA analyses were applied. Neither the father’s (F Ratio = 0.039) nor mother’s (F Ratio = 1.086) level of education proved to be statistically different across the sample groups.

**Group differences for Time 1 self-concept measures.** In this section, analyses focuses on whether there were any statistically significant differences between the three Program groups on their first self-concept measures. Table 6.7 presents the analysis of variance and between group correlation outcomes for the 17 Time 1 student self-concept measures.

Data for a total of 17 separate self-concept scales which comprise the SDQIII-A (see Study 1 described at the beginning of the chapter for further detail) were collected at the commencement of the research period (Time 1), with bivariate Pearson correlation and analysis of variance statistics used to determine any group differences (see below for a more detailed discussion of the methods of analysis used in the study).
<table>
<thead>
<tr>
<th>Variable</th>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F ratio</th>
<th>Program r Diff. 1 x 2/3</th>
<th>Program r Diff. 2 x 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maths SC</td>
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<td>0.37</td>
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<tr>
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<td>Within</td>
<td>321</td>
<td>854.63</td>
<td>2.67</td>
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<td></td>
</tr>
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<td>0.08</td>
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<tr>
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<td>Within</td>
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<td>408.67</td>
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<td>Within</td>
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<td></td>
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<td>Within</td>
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<td>1.08</td>
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<tr>
<td></td>
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<td></td>
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<td>Within</td>
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<tr>
<td>Appearance SC</td>
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<td>2</td>
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<td>0.37</td>
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<td></td>
<td>Within</td>
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<td>547.48</td>
<td>1.71</td>
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<td></td>
</tr>
<tr>
<td>Opposite Sex SC</td>
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<td>1.92</td>
<td>0.96</td>
<td>0.56</td>
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<td>0.05</td>
</tr>
<tr>
<td></td>
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</tbody>
</table>

Note: SC=Self-concept facet, Between=Between Groups, Within=Within Groups, df=Degrees of freedom, SS=Sum of Squares, MS=Mean Squares, r Diff. 1 x 2/3=correlation coefficient of Program Group 1 contrasted to Program Groups 2 and 3, r Diff. 2 x 3=correlation coefficient of Program Group 2 contrasted to Program Group 3. *p < .05, **p < .01
As Table 6.7 demonstrates, Pearson correlation coefficients were non-significant for all 17 self-concept facets, ranging between .00 and .10 for both contrast models (i.e. Program 1 contrasted to Program groups 2 and 3, and Program 2 contrasted to Program group 3). Analysis of variance statistics confirmed no statistical significant differences between the three Program groups for any of the eleven non-academic SDQIII-A subscales (Physical Ability, Physical Appearance, Opposite Sex, Same Sex, Religion, Emotional Stability, Honesty, Parents, Inter-Social, Work Value, and Tertiary Social self-concepts), and the five academic SDQIII-A subscales (Maths, Verbal, Problem Solving, Academic and Tertiary Ability self-concepts).

**Overview of Results: Differences Between Comparison and Program Groups for Time 1 Measures**

Students participating in Study 2 were members of intact classes randomly selected to participate in one of four groups that comprised the research model. Non-significant differences resulted for the sample groups regarding a pre-test measure (AdultSAT). Analyses indicated that the demographic variables of age and gender had no differences occurring between the groups, with no statistical differences resulting for five remaining background variables (i.e. students’ participation in previous studies, parents’ and student’s country of birth, parents’ level of education, parents’ occupation during secondary school). From a total of 17 Time 1 student self-concept measures, outcomes suggested there were no statistical differences between the three program groups for any of the five academic or eleven social self-concept facets. Hence, results of the analyses suggest that the sample groups participating in the major study are equivalent.

**Significant Other Participants in Study 2**

Participants of the Study 2 Program groups who completed the SDQIII-A ($N = 211$) were also asked to have the instrument completed by the significant other person in their lives (e.g. husband/wife, mother/father etc.). The purpose of this aspect of Study 2 is to determine the influence of significant others’ on student persistence as has been previously identified in past attrition literature (see Chapter 2). The procedure for instrument completion was the same as that outlined for Study
1. A response rate of 86.7% \((N = 183)\) was achieved for significant other respondents. Instructions directed to significant others requested that they complete the survey as if they were the student themselves, using their personal knowledge of their significant other as the basis of their responses (see Appendix C.4 for more detailed instructions). The following outlines the descriptive outcomes for significant other participants.

The mean age of the Significant Other sample was 35.8 years \((SD = 12.86)\), ranging from 15 to 67 years. The mean number of years indicated by significant other respondents as having known the student for Program 1 was 14.3 years \((SD = 10.5)\) years, 16.3 years \((SD = 9.2)\) years for Program 2, and 16.7 years \((SD = 12.8)\) for Program 3. The overall mean years duration for student/significant other relationships for the entire three Program groups was 15.3 years \((SD = 10.8)\) years. Tables representing the various characteristics of significant others summarised above can be viewed in Appendix E.2.

Data Analysis for Study 2

Logistic regression and Pearson correlation statistics were used to examine a selection of variables identified in past attrition literature as potential predictors of student persistence patterns for the current study (Research Questions 1.1–6.1). Each of the TAFE student Time 1 measures was collected at the beginning of the research period for Study 2. Various direct and interaction effects of these variables were tested for their relation to students' attrition status (i.e. continuing/withdrawn) for the purpose of identifying potential prediction variables of attrition. Logistic Regression analysis is described as the probability of a dichotomous (a variable comprising only two values) outcome variable being predicted from a set of independent variables (for further discussion, see Stage, 1988b; Pedhazur & Schmelkin, 1991). Outcomes report the portion of the total observed variability in the dependent variable that is explained by the regression. The dependent variable for this aspect of the analyses is the students' attrition status, with the regression equation examining various categorical (variables that have a limited number of distinct values) and continuous (variables that do not have a fixed number of values) independent variables. A bivariate correlation is considered a measure of the linear relationship between two
variables. According to Pedhazur and Schmelkin (1991), Pearson's $R$ is the preferred statistic for correlation analysis and is described as a measure of the linear association between two variables where the value of $R$ ranges between -1 (a perfect negative relationship in which all points fall on a line with negative slope) and +1 (a perfect positive relationship in which all points fall on a line with positive slope). A value of zero would therefore indicate no linear relationship between the variables. Correlation and logistic regression statistics were also utilized to determine any significant differences in persistence rates occurring between the sample groups (Hypotheses 7.1 and 8.1–2).

Multivariate analysis of variance (MANOVA) is a procedure that divides the total variation in the dependent variable (e.g. students’ attrition status) into components or effects, and produces tests for the statistical significance of each component (Ferguson & Takane, 1989). In regard to the current study, Research Questions 9.1–2 for example examine the differences between students’ Time 1 and Time 2 self-concept measures and the interaction of these variables with the students’ persistence patterns and the Program group to which they have been assigned. The students’ Time 2 self-concept measure is held as the dependent variable and their associated Time 1 self-concept score included as a covariate in the regression equation. A covariate is described as a concomitant variable that is measured in addition to the dependent variable in an analysis of variance statistic. It represents a source of variation in the dependent variable that has not otherwise been controlled for in the experiment but is believed to affect the dependent variable (Kirk, 1982).

A multivariate analysis of variance was applied to each of the 17 self-concept variables used in the study, where special orthogonal contrasts were constructed for the three Program groups. Orthogonal (i.e. factors that are not correlated) contrasts describe a comparison involving two or more means. A linear contrast of a combination of means can be used to test the hypothesis that the average of the first two means equals the third mean in the population. Two comparisons are orthogonal when the sum of the products of the coefficients for their respective elements is zero (Pedhazur & Schmelkin, 1991). The first contrast examined in Hypotheses 9.1–2 tests the self-concept mean of Program 1 compared to the mean of Programs 2 and 3,
while the second contrast tests the relation between Program 2 and Program 3. Positive values therefore suggest that for the first orthogonal contrast, the self-concept mean of Programs 2 and 3 is of higher value than that of Program 1, and for the second contrast, the mean of Program 3 is of higher value than that of Program 2. A further contrast was constructed for examination of the continuing/withdrawn outcome of the student, where the withdrawn status (1) was subtracted from the continuing status (0) so that positive values indicated higher scores for the continuing category. Finally, the MANOVA analysis was conducted to provide single degree of freedom tests in order to identify interaction effects between the self-concept construct being examined and the attrition status of the student. Interaction effects therefore indicate that the effect of the intervention contrast varies depending on whether the student has persisted in their program of study, and positive interaction effects mean that program effects were larger for persisting students than for non-persisting students.

Summary: Study 2 Self-Concept Enhancement and Attrition Intervention

The current study has relied on the Shavelson et al. (1976) model, and the Marsh/Shavelson (1985) revision of the model, identified in Chapter 3 as the most structurally sound self-concept theory to form the basis for the experimental intervention for Study 2. The SDQ III has also been identified as the most psychometrically sound instrument to account for the multidimensionality of self-concept, its reliability and validity of the original version being previously demonstrated in Chapter 3, and the reliability and validity following subsequent modifications have been tested using a CFA approach following local application on a sample population of Study 2 (see Chapter 7). A potentially powerful intervention has been devised and implemented based on previous theory and research, where for example, internally focused feedback has been employed through student self-exploration. Study 2 has attempted to capitalise on the strongest available research methodology by (a) achieving a sample size that allows for the strongest statistical tools to be employed (e.g. SEM, MTMM); (b) focusing the intervention on specific academic and non-academic facets of self-concept and other outcomes (e.g. student self-predictions of persistence), determined by hypotheses with detailed rationales (see Chapter 5); and (c) employing a construct validity approach in examining the
intervention effects. Study 2 has also attempted to capitalise on the implications of the results of causal modelling studies by designing the experimental intervention so as to enhance both self-concept and the desired outcome of persistence, where, as is implied in the reciprocal effects model (see Chapter 4), such design is more likely to produce longer lasting effects as a result of the experimental intervention. Finally, other important methodological initiatives (Craven et al., 2003) achieved in the current study include the delivering of the intervention in the naturalistic setting, and the extensive training of teachers participating in the research regarding the various aspects of the intervention in order to improve their role as change agents (Hattie, 1992). Thus the guidelines developed by Craven, Marsh and Burnett (2003) to achieve a more effective approach to self-concept enhancement research have been met.

Student perceptions can be quite complex, and often a scaled response to a questionnaire item may not be sufficient to fully explain the circumstances of a particular issue. Outlined in the next section is the methodology for Study 3 which comprised a qualitative approach to achieving further insight into TAFE student attrition.

Methodology Study 3: Student Self-Reported Factors Influencing Withdrawal—
A Qualitative Analysis

The semi-structured personal interview procedure provides the researcher with an opportunity to identify and pursue aspects of continuing and non-persistence behaviour directly from the individual participants at the time of the interview, allowing any ambiguities to be clarified and new areas raised by the interviewee to be investigated immediately.

From a total of 438 students with a “continuing” classification, 50 participants were randomly selected for personal interviews conducted in a private study room of the campus library arranged specifically for this purpose. A total of 27 continuing students agreed to participate in the personal interview with the researcher at the completion of the research period, taking an average of 17 minutes per interview to complete.
Instrumentation

Two instruments were developed for use in the study: the Non-Persisting Student Interview Schedule attempts to gain more insight from students regarding their non-persistence in their course of study; while the Continuing Student Interview Schedule examines the continuing students' methods of dealing with the same issues that resulted in the non-persistence of others.

Non-Persisting Student Interview Schedule. The purpose of interviewing withdrawn students was to:

1. Examine more definitively the themes identified by students for their withdrawal from studies;
2. Identify any differences in the causes specified for withdrawal between participants of the Comparison and Program sample groups;
3. Describe and map the Primary and Secondary attrition themes presented by interviewees as their reasons for non-persistence; and
4. Further examine and clarify participant’s responses for inconsistencies and rationalisations regarding their non-persistence.

Continuing Student Interview Schedule. The Continuing Student Interview Schedule was designed to extricate more definitive detail from students regarding their persistence behaviour, including:

1. How the continuing student dealt with the same types of problems that resulted in other students choosing to withdraw from their course of study;
2. The identification of attrition theme differences between continuing and withdrawn students;
3. The detailing of differences in perceptions of what were considered Primary or Secondary attrition themes between continuing and withdrawn students; and
4. Identification of differences in motivation to persist between continuing and withdrawn students.
Procedure

Authority to proceed with this aspect of the study was granted by the supervisory ethics committees representing the higher education college being studied and the University of Western Sydney. All interviewees were of adult age and agreed to participate in the research procedure at the initial contact point when interview appointments were arranged. Students were approached to volunteer to participate in the completion of either the Non-Persisting Student Interview Schedule or the Continuing Student Interview Schedule.

As previously outlined in the preceding section, withdrawn participants were mailed second-round instruments immediately on identification of their withdrawal or within three weeks of their last class attendance, with follow-up mail-outs for non-returns occurring up to a total of three times. Following a nil return for the third mail-out procedure, withdrawn students were contacted by telephone and their participation in the study was encouraged. During this telephone contact, the researcher conducted the Non-Persisting Student Interview Schedule (see Appendix H.2 for an example of the Schedule), taking an average of 22 minutes to complete. A total of 15 withdrawn individuals from the Comparison and three Program groups agreed to participate in the personal interview with the researcher at the completion of the research period. Regardless of the classification of the student being interviewed, a previously prepared and piloted Format and Procedure for Interviews schedule was followed at each contact. A full copy of the documents for both the Non-Persisting and Continuing interviews are at Appendices H.1–2, however, in brief, the document outlines instructions for the manner in which the interview was to be conducted, including guidelines for interactions with participants, instructions for the interviewee, the manner for the delivery of questions and the procedure for clarification of responses, and the recording and rating procedure of responses.

Classification of Responses

Participant responses to various questions during the interviews were classified into standardised descriptive weightings. For example, Question 4 of the Non-Persisting Student Interview Schedule asked:
4. How did you find the level of difficulty of the course?

The interviewee's response was categorised and reported on the Weighting and Responses Schedule as one of the following descriptors:

1. Easy
2. Challenging
3. Far too difficult

The participant was then asked to comment on why they perceived the course this way and the details subsequently recorded on the Weighting and Responses Schedule.

Identification of Non-Persistence Themes

Both withdrawn and continuing students were asked to describe their perceptions regarding the major influences attributed to decisions or considerations of withdrawal but from their differing perspectives. A list of commonly identified impactors on non-persistence behaviour was devised, and following the identification of major themes by participants in previous pilot studies, students of the current study were then encouraged to explore all other possibilities in the classification list by the author.

Question 6 was identical in the Student Interview Schedules for both the continuing and withdrawn participants:

6. What were the circumstances of any withdrawal considerations?

The classification list which comprised the following ten themes was presented to the interviewee:

1. **Work related:** changed jobs, work commitments, studies unrelated to work.
2. **Interest, Need or Preference:** personal changes, course subject inappropriate or not practical enough.

3. **Physical demands:** travel, attendance and time commitments.

4. **Academic demands:** course material too difficult, assessment difficulties.

5. **Institutional facilities:** physical facilities, support facilities, recreational facilities.

6. **Institutional staff:** teachers, support staff, lack of interaction.

7. **Student Issues:** student interaction issues, pressure of competition, socially demanding.

8. **Family:** demands on time, missing them, family illness, relationship problems, moving residence.

9. **Personal:** unmotivated, low self-concept, isolation, inadequacy, lack of basic skills, illness, course and resource cost problems.

10. **Communication:** language problems, poor literary skills, technology inadequacies.

The non-persisting participants were asked to reflect on the actual influences that resulted in their decision to withdraw, while the continuing students were asked to identify any issues that may have brought them close to making a decision to withdraw. Responses were examined for similar themes that may exist between continuing and withdrawn students for the purpose of identifying why continuing students were able to overcome non-persistence problems and withdrawn students were not.

A table was developed by the researcher (see Appendices H.1–2) to ensure the timely recording of precise and uniform responses from participants. Theme selection by participants was recorded as either Primary or Secondary, and student comments were documented to substantiate or clarify their selection. A theme classified as Primary indicated that the student found this particular circumstance to be a major contributor to their consideration of or actual withdrawal from their study program. A theme nominated as Secondary was considered by the participant as only a minor to moderate influence in their consideration or actual decision to withdraw and was weighted according to prepared Likert-type scale descriptors. Table 6.8
demonstrates several of the major themes and the format for the recording of responses.

Table 6.8

*Instrument Used for the Recording of Continuing and Non-Persisting Student Responses to the Major Attrition Themes*

<table>
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<th>THEME</th>
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</thead>
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<tr>
<td>Physical Demands</td>
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<tr>
<td>Academic Demands</td>
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**Summary**

This chapter has established that the three studies outlined for investigation are based on sound methodology that ensures the latest developments in self-concept theory and measurement have been incorporated. All three studies are designed to fully examine the hypotheses and research questions posed, addressing an area of research that not only achieves very little attention in the literature, but also a field of study that is fraught with poor methodological design and weak psychometric models for evaluation.

Further, this chapter has demonstrated that some of the methodological problems and limitations common to attrition and self-concept research have been avoided by:
1. Evaluating the psychometric properties of the self-concept instrumentation administered for this mature-age student population;
2. Administering a multidimensional measure of self-concept to adequately account for the multidimensionality of self-concept in the research design;
3. Employing instrumentation developed specifically for this research and population;
4. Utilising a larger number of participants given the difficulties of access to and participation from the population studied; and
5. Conducting sophisticated statistical analyses.

Therefore, this chapter presents a strong and suitable methodology to examine hypotheses and research questions which have been evaluated with powerful statistical tests.
CHAPTER 7

STUDY 1 RESULTS: THE STRUCTURE AND NATURE OF SELF-CONCEPTS OF MATURE-AGE STUDENTS

Introduction

There exists a surfeit of research that investigates the self-concepts of older adolescent and young adult students, but very little of this literature examines the self-concepts of mature-age students who are generally employed and who study part-time at institutions of higher education. The main purpose of this chapter is therefore to examine the structure and nature of self-concepts of mature-age TAFE students who are studying part-time. More specifically, this chapter will address the hypotheses and research questions proposed in Chapter 5 pertaining to Study 1.

Firstly the psychometric properties of the Self Descriptive Questionnaire Version III (SDQ III), the extended SDQIII-A, and a modified shortened version of the latter instrument will be presented based on reliability analysis and CFA. Secondly the nature and structure of self-concept for part-time mature-age TAFE students elucidated by CFA will be compared to results achieved for older adolescent and young adult groups. Finally, tests of the extent of congruence and dissonance between self and significant others’ ratings of multiple dimensions of self-concept will be presented based on structural equation modelling (SEM). Results are presented in the context of each of the hypotheses and research questions posed (see Chapter 5).

Results Hypothesis 1.1 and 2.1: Evaluation of the Reliability of the SDQ III and Extended SDQIII-A Scales for Mature-Age TAFE Students

Hypothesis 1.1 predicted that the SDQ III will be a reliable measure of the self-concepts of part-time mature-age TAFE students whereby the reliability and
factor structure of the SDQ III will be comparable to its reliability in previous research measuring the self-concepts of older adolescent and young adults. Hypothesis 2.1 predicted that the reliability and factor structure of newly developed self-concept scales will be supported for part-time, mature-aged TAFE students.

**Predictions**

In order to test hypotheses 1.1 and 2.1, coefficient alpha reliability estimates (α) were conducted separately for items in each scale (see Chapter 6 for more detail regarding the methodology used in Study 1). The internal consistency of the thirteen original subscales of the SDQ III, together with the four new domain-specific subscales of the extended SDQ III, were assessed and estimates of reliability were calculated for the total participants (N = 1,092). The following sections report the results based upon these analyses.

**Coefficient alpha reliability analyses.** Table 7.1 lists the coefficient alpha estimates of reliability, the means and standard deviations achieved for each of the seventeen subscales of the SDQIII-A (mature-age respondents), together with the reliability outcomes achieved for the original thirteen subscales of the SDQ III Normative Archive Group (responses by older adolescent and young adults; see Marsh, 1992). As the Table demonstrates, internal consistency estimates for the 10 to 12 item subscales of the SDQIII-A are high, achieving a mean alpha of .88 with an alpha range of .96 to .74 for the thirteen original SDQ III subscales, and a mean alpha of .81 with an alpha range of .95 to .78 for the four new SDQ III-A subscales extension. For the seventeen SDQIII-A self-concept scales taken together, a mean alpha of .85 was achieved.

Outcomes provide clear evidence that the coefficient alpha estimates of reliability for the thirteen original subscales of the SDQ III identified in this study are similar to those reported in the Normative Archive Group (see Marsh, 1992), and that the four new subscale outcomes are comparable in terms of achieving solid internal consistency outcomes. Five of the original thirteen SDQ III scales in this study (i.e. Physical Appearance, Honesty, General, Problem Solving, and Academic self-concepts) achieved higher reliability coefficients than the same scales in the
normative data. Thus, these results suggest that the SDQ III is a reliable measure of self-concepts for the TAFE population, and comparable to reliabilities reported in Marsh (1992). In addition, the coefficient alpha results for the four new additional self-concept scales are high and comparable to those reliabilities reported for the subscales of the original version of the SDQ III.

Table 7.1

Reliability and Descriptive Statistics for the Item-Pair Analysis of the Original Version of the SDQ III (68 Item-Pairs; N = 9,187) and the SDQIII-A Extended Version (89 Item-Pairs; N = 1,092)

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<th>Mean</th>
<th>SD</th>
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Note. No. = number of items; Rel = coefficient a estimate of reliability, SC = Self-concept. All responses in the original archive were based on the long (136 item) and original version of the SDQ III. Phys = Physical Ability SC; Appr = Physical Appearance SC; GSex = Opposite Sex SC; SSex = Same Sex SC; Prnt = Parents SC; Honesty SC; Relg = Religious SC; Emot = Emotional Stability SC; Genl = General Esteem SC; Prob = Problem Solving SC; Math = Math SC; Verb = Verbal SC; Acad = Academic SC; ISoc = Intersocial SC; WVal = Work Value SC; TSec = Tertiary Social SC; TAb1 = Tertiary Ability SC.
**Confirmatory Factor Analysis**

The multidimensional factor structure of the original thirteen factors of the SDQ III and the four new factor extensions of the SDQIII-A developed for the purposes of this study (see Chapter 6) were examined using confirmatory factor analyses (CFA) with tests of invariance. Model 1 utilised confirmatory factor analysis to examine the structure of the extended SDQ III instrument (SDQIII-A). This involved the assessment of the thirteen factor model of the original SDQ III form based on the thirteen scales the instrument was designed to measure, together with four newly devised scales of the SDQIII-A (see Table 7.2). Model 1 was designed to allow measured variables to load on the related factor to which it was intended to reflect. Factor correlations and uniquenesses (i.e. residuals for each variable that is measured) were estimated, with correlations within the uniquenesses being constrained to zero. As in the original SDQ III study (see Marsh & O'Niell, 1984) and recommended in the SDQ III Manual (see Marsh, 1989), factor analyses were conducted with item-pair parcels (also see earlier discussion in Chapter 6). For Model 1, a total of 178 items (89 item pairs) comprising the seventeen subscales of the extended SDQ III were factor analysed using confirmatory factor analysis. Seventeen distinct a priori factors were identified in the analysis. Table 7.2 lists the 89 item-pair outcomes for the seventeen 10 to 12 item factors of the extended SDQ III, and Table 7.3 identifies the factor correlation coefficients achieved in the analyses for each of the factors. As the Tables demonstrate, despite the inclusion of 42 items comprising the additional 4 scales with the 136 items from the original instrument, relatively high and consistent target factor loadings were achieved for the seventeen factor scales of the extended SDQ III instrument, indicating strong internal-consistency estimates for each factor. Average factor loadings range from .88 to .64 for twelve of the original thirteen SDQ III subscales, with the Honesty SC factor scale achieving a more modest factor loading of .55. For the newly devised scales, average factor loadings ranged from .68 to .59. The mean factor coefficient for the original thirteen SDQ III factors was .75 ($SD = .07$), and for the new four supplemented factors a mean factor coefficient of .64 ($SD = .09$) was achieved. The overall mean factor coefficient for the entire seventeen factors was .72 ($SD = .07$), with item-pair coefficients ranging from .93 (Religion self-concept item pair 3) and .47 (Tertiary Social self-concept item pair 4). A chi square of 16499.77 ($df = 3691$) was achieved for Model 1. A TLI of 0.955 and a
RNI of 0.958 suggest that the model is a good fit for the data, however, the RMSEA of 0.0556 is outside the measure for a close fit (i.e. poorer than the 0.05 parameter) yet within the range of a reasonable fit (i.e. less than 0.08).

Table 7.2
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Note. Item factor coefficients are rounded to two decimal places. SC=Self-concept, Phy=Physical Ability SC; Appr=Physical Appearance SC; Opp=Opposite Sex SC; Same=Same Sex SC; Pararents SC; Hon=Honesty SC; Relg=Religious SC; Emot=Emotional Stability SC; Gen=General Esteem SC; Probl=Problem Solving SC; WVal=Work Value SC; Math=Math SC; Verbl=Verbal SC; Acad=Academic SC; Intsoc=Intersocial SC; Tsoc=Tertiary Social SC; Tabl=Tertiary Ability SC.
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Note: Factor coefficients are rounded to two decimal places. SC=social concept, Phys=Physical Ability SC; Appr=Physical Appearance SC; Osex=Opposite Sex SC; SSex=Same Sex SC; Prnt=Parents SC; Hons=Honesty SC; Relg=Religious SC; Emot=Emotional Stability SC; Genl=General Esteem SC; Prob=Problem Solving SC; Math=Math SC; Verb=Verbal SC; Acad=Academic SC; ISoc=Interpersonal SC; WVal=Work Value SC; T Soc=Tertiary Social SC; TAbl=Tertiary Ability SC.
The results for Model 1 provide strong support for a multidimensional structure of self-concept for mature-age students who are studying part-time in a higher education college environment. The outcomes replicate the strong psychometric properties of the SDQ III found in previous research with older adolescents and provide support for the newly developed self-concept scales as sound measures of mature-age self-concepts.

**Summary: Evaluation of the Reliability of the SDQ III and Extended SDQ III-A Scales for Mature-Age TAFE Students**

Hypothesis 1.1 predicted that the SDQ III will be a reliable measure of the self-concepts of part-time mature-age TAFE students whereby the reliability and factor structure of the SDQ III will be comparable to its reliability in previous research measuring the self-concepts of older adolescent and young adults. Hypothesis 2.1 predicted that the reliability and factor structure of newly developed self-concept scales will be supported for part-time, mature-aged TAFE students. The results presented above demonstrate similar reliability and factor structure for the SDQ III for TAFE students in comparison to the normative archive. In addition, support was found for the reliability and factor structure of the newly developed scales. Hence, these results provide support for Hypothesis 1.1 and 2.1, and therefore both of these hypotheses were accepted.

**Results Hypothesis 3.1: Psychometric Properties of the Modified Short Form Version of the SDQIII-A**

**Predictions**

Hypothesis 3.1 predicted that the reliability and factor structure of a shortened modified version of the SDQ III administered to mature-aged TAFE students will be comparable to results derived from the extended version of this instrument (i.e. 17 self-concept factors comprising between 10 and 12 items per factor). In order to test this hypothesis, the 6 item/17 factor model was tested for reliability alpha outcomes and CFA factor loadings.
**Item Reduction of the Extended SDQ III**

To condense the extended version of the SDQ III for ease of application without compromising the instrument (see Chapter 6 for more details regarding the reduction of scale items), Model 2 required that items be removed from each of the seventeen factors according to the guidelines for short form construction by Smith, McCarthy and Anderson (2000), and the further recommendations made by Marsh, Ellis, Parada and Richards (in press; also see Chapter 3). For the reduced version of the extended instrument, each of the seventeen subscales of the extended SDQ III comprised only six items, totaling 102 items for the complete instrument. Table 7.4 lists the reliability alpha coefficients, scale means and standard deviations for the 178 items of the 17 subscales of the extended SDQIII-A (long form), and the 102 items of the 17 subscales of the short-form version of the instrument.

Analysis of the individual items comprising the 6 item/thirteen subscales of the shortened version of the modified SDQ III suggest that despite the single item analysis and the inclusion of another 24 items, the thirteen original self-concept reliability alpha coefficients achieved similar results to that of the long form of the SDQIII-A (Marsh, 1992). As Table 7.5 demonstrates, internal consistency estimates for the 6 item subscales are high, achieving a mean alpha of .82 for the 17 subscales of the short-form SDQIII-A. A mean alpha of .83 with an alpha range of .94 to .64 was achieved for the thirteen original SDQ III subscales, and a mean alpha of .79 with an alpha range of .84 to .72 for the four new shortened scales. Table 7.6 identifies the factor correlation coefficients achieved in the analyses for each of the factors for Model 2.
Table 7.4

Reliability and Descriptive Statistics for the Long (N = 1,092; 178 Items) and Short (N = 1,187; 102 Items) Versions of the SDQIII-A

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| Mean     | .87 | 5.47 | 1.20 | .85 | 5.45 | 1.30 |

Note. No.=number of items; Rel=coefficient α estimate of reliability, SD=Standard deviation. Phys=Physical Ability SC; Appr=Physical Appearance SC; Osex=Opposite Sex SC; Ssex=Same Sex SC; Prnt=Parents SC; Hons=Honesty SC; Relg=Religious SC; Emot=Emotional Stability SC; Genl=General Esteem SC; Prob=Problem Solving SC; Math=Math SC; Verb=Verbal SC; Acad=Academic SC; ISoc=InterSocial SC; WVal=Work Value SC; TSoc=Tertiary Social SC; TAbI=Tertiary Ability SC.
Table 7.5
Item Loadings for the 17 SDQIII-A Self-Concept Factors Comprising 102 Items

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Note. Factor coefficients are rounded to two decimal places. Phys=Physical Ability SC; Appr=Physical Appearance SC; Osex=Opposite Sex SC; Ssex=Same Sex SC; Prnt=Parents SC; Hons=Honesty SC; Relg=Religious SC; Emot=Emotional Stability SC; Genl=General Esteem SC; Prob=Problem Solving SC; Math=Math SC; Verb=Verbal SC; Acad=Academic SC; ISoc=Intersocial SC; WVal=Work Value SC; T Soc=Tertiary Social SC; Tabl=Tertiary Ability SC.
Testing the Psychometric Properties of the Shortened Modified SDQ III

A chi square of 24091.5 (df = 4913) was achieved for the short-form model of the SDQIII-A. A TLI of 0.922 and a RNI of 0.926 suggest that the model is a good fit for the data, however, the RMSEA of 0.057 is outside the measure for a close fit yet within the range of a reasonable fit.

Summary: Psychometric Properties of the Modified Short Form Version of the SDQIII-A

The outcomes of the present analysis provide support for the shortened modified version of the SDQIII, for quicker application with sustainable psychometric integrity comparable to that of the outcomes identified for the extended version of the instrument. The results presented above led to the acceptance of Hypothesis 3.1 which predicted that the reliability and factor structure of a shortened modified version of the SDQ III administered to mature-aged TAFE students would be comparable to results derived from the extended version of this instrument.

Results Hypothesis 4.1: Comparing the Nature and Structure of Self-Concept for Mature-Age Students to Previous SDQ Research Outcomes

Predictions

Hypothesis 4.1 predicted that the nature and structure of self-concept for part-time mature-age TAFE students will be similar to previous research results for adolescent groups whereby the 13-factor a priori model will be identified; the eight non-academic SDQ III scales (Physical Ability, Physical Appearance, Opposite Sex, Same Sex, Religion, Emotional Stability, Honesty and Parents self-concepts) will be more positively correlated with each other than with the four academic SDQ III scales (Mathematics, Verbal, Problem Solving and Academic self-concepts).
**Results: Hypothesis 4.1**

Hypothesis 4.1 predicted that the 13-factor a priori model will be identified, where the eight non-academic SDQ III scales (Physical Ability, Physical Appearance, Opposite Sex, Same Sex, Religion, Emotional Stability, Honesty and Parents self-concepts) will be more positively correlated with each other than with the four academic SDQ III scales (Mathematics, Verbal, Problem Solving and Academic self-concepts).

Evidence presented earlier in this chapter supports the proposition that the thirteen a priori subscales of the original SDQ III have been identified as appropriate measures of self-concept for an adult student population of all ages. Table 7.6 identifies that similar relations between the thirteen subscales exist for a mature-aged student population as it does for the older adolescent and young adult population for which the SDQ III was originally designed. For example, the Academic self-concept subscale correlated with the academic type scales (correlation mean = 0.48), but achieved low mean correlations with the eight non-academic subscales of the SDQ III (mean correlation = 0.21). Similarly, low mean correlations also resulted for the eight non-academic subscales and the remaining academic subscales (Verbal self-concept = 0.23; Math self-concept = 0.17; and Problem Solving self-concept = 0.26), with an overall academic to non-academic subscales correlation mean of 0.22.

Thus the hypothesis (Hypothesis 4.1) that the eight non-academic SDQ III subscales (Physical Ability, Physical Appearance, Opposite Sex, Same Sex, Religion, Emotional Stability, Honesty and Parents self-concepts) would be more positively correlated with each other than with the four academic SDQIII subscales (Mathematics, Verbal, Problem Solving and Academic self-concepts) is therefore supported.

**Summary: Comparing the Nature and Structure of Self-Concept for Mature-Age Students to Previous SDQ Research Outcomes**

The results of the preceding analyses suggest that similar relations between the thirteen subscales exist for a mature-aged student population as it does for the
older adolescent and young adult population for which the SDQ III was originally designed. As found in established SDQ research, low mean correlations resulted for the eight non-academic self-concept subscales and the remaining academic subscales, providing unequivocal support for the hypothesis (Hypothesis 4.1) that the eight non-academic SDQ III subscales (Physical Ability, Physical Appearance, Opposite Sex, Same Sex, Religion, Emotional Stability, Honesty and Parents self-concepts) would be more positively correlated with each other than with the four academic SDQ III subscales (Mathematics, Verbal, Problem Solving and Academic self-concepts).

**Results Research Question 6.1: Relations Between Original and Supplemented Self-Concept Scales**

**Research Question 6.1**

Research Question 6.1 posed: Does the data indicate whether the relation characteristics between the original thirteen self-concept scales are similar for the four new self-concept facets of the SDQIII-A, and do scale relations patterns extend between the original and new self-concept facets? A factor coefficient correlation matrix was constructed to examine the relations between the established and new subscales of the SDQIII-A.

**Factor Correlations**

Further analysis of the correlations presented in Table 7.6 of the four newly developed scales and the original thirteen subscales of the SDQ III reveals a similar pattern of outcomes to that achieved by Marsh (1992) in his earlier work for the original SDQ III instrument, where correlations between like factors were high, while correlation coefficients between non-related factors were low. For example, the new academic type factor Tertiary Ability self-concept correlated highly with like factors such as Academic self-concept \( (r = 0.57) \), with Problem Solving self-concept \( (r = 0.59) \) and with Verbal self-concept \( (r = 0.61) \), while the non-academic factor of Inter-Social self-concept correlated highly with other non-academic subscales such as Same Sex \( (r = 0.64) \) and Opposite Sex \( (r = 0.63) \) self-concept scales. Examples of
unrelated factors producing low or no correlations can be evidenced by comparing the Inter-Social self-concept subscale with Academic \( (r = 0.20) \), Verbal \( (r = 0.24) \), Math \( (r = 0.15) \), and Problem Solving \( (r = 0.30) \) self-concepts scales.

The Academic self-concept subscale achieved a mean correlation of 0.57 with the original and new academic subscales. Each of the academic subscales achieved low mean correlations with the eight original and three new non-academic type self-concept scales (mean of eleven non-academic subscales with Academic self-concept \( (r = 0.23) \), with Verbal self-concept \( (r = 0.22) \), with Math self-concept \( (r = 0.15) \), with Problem Solving \( (r = 0.30) \), and Tertiary Ability self-concept \( (r = 0.36) \)), producing an overall academic to non-academic subscales correlation mean for the SDQIII-A of 0.25. This compares favourably with the overall academic to non-academic subscales correlation mean for the original SDQ III of 0.22.

**Summary: Relations Between Original and Supplemented Self-Concept Scales**

Hence the above analyses in response to Research Question 6.1 suggest that relations between the new self-concept facets occur similarly to those in the original self-concept scales whereby factor correlations between like self-concept factors were high, while correlation coefficients between non-related factors were low. Further, analyses indicate that scale relations patterns extend between the original subscales of the SDQ III and the new self-concept facets of the SDQIII-A.

**Results Hypothesis 5.1–2: Evaluation of Self and Significant Other’s Ratings of Multiple Dimensions of Self-Concept**

**Predictions**

This section of the chapter examines the students’ self and significant other’s ratings of multiple measures of self-concept. Hypothesis 5.1 posited that there would be consistently high self-other agreement on matching scales of the SDQIII-A supporting the convergent validity of the self-concept ratings based upon self-ratings and significant others’ ratings, while Hypothesis 5.2 predicted that there would be good support for discriminant validity in that convergent validities for each trait based upon
self perceptions and significant others’ ratings will be consistently higher than correlations between that trait and other traits.

Two models were examined for this aspect of the study: Model 3 ($N = 352$) considers the extended version of the SDQ III (17 self-concept subscales comprising between 10 and 12 items in each scale comprising a total of 178 items), where 51 parcels comprising between 3 and 4 items per parcel were evaluated; and Model 4 ($N = 400$) considers the shortened modified version of the SDQ III instrument (17 self-concept subscales comprising only 6 items in each scale for a total of 102 items), where 51 parcels comprising 2 items formed the basis of the analysis. Confirmatory factor analyses were again used in this aspect of the study, however, factor correlations and uniquenesses were estimated without correlations within the uniquenesses being constrained to zero (see Chapter 6 for further discussion).

**Alpha Reliability Estimates**

Table 7.7 lists the coefficient alpha estimates of reliability, the means and standard deviations achieved for each of the seventeen subscales for the self and significant other ratings of the short from version of the SDQIII-A ($N = 352$). As Table 7.7 demonstrates, internal consistency estimates for the 6 item subscales for the significant other short form are high, achieving an overall mean alpha of 0.81 for the entire 17 self-concept subscales, a mean alpha of 0.82 with an alpha range of 0.94 to 0.63 for the thirteen original SDQ III subscales, and a mean alpha of 0.78 with an alpha range of 0.83 to 0.71 for the four new shortened scales. Comparison of the normative data for significant other outcomes achieved by Marsh (1992) demonstrate comparable results for the current study, where Marsh reports an overall mean alpha of 0.90 with an alpha range of 0.95 to 0.81 for the thirteen original SDQ III subscales.
### Table 7.7

**Reliability and Descriptive Statistics for Self-Other Responses to the SDQIII-A**

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**Mean**  
- SDQ III-A Self: .85  5.45  1.30  
- SDQ III-A Other: .81  5.54  1.26

**Note.** All analyses are based on responses to the 102 items on the short version of the SDQIII-A. Rel=Reliability (coefficient alpha) estimates. Phys=Physical Ability SC; Appr=Physical Appearance SC; Osex=Opposite Sex SC; Ssex=Same Sex SC; Prnt=Parents SC; Hons=Honesty SC; Relg=Religious SC; Emot=Emotional Stability SC; Genl=General SC; Prob=Problem Solving SC; Math=Math SC; Verb=Verbal SC; Acad=Academic SC; ISoc=Intersocial SC; WVal=Work Value SC; Tsoc=Tertiary Social SC; TABl=Tertiary Ability SC.

### Multitrait-Multimethod Analyses

The multitrait-multimethod procedure was utilised to evaluate both models (see Chapter 6 for a detail explanation of the procedure). Model 3 (SDQIII-A long form comprising 178 items) achieved a chi square of 9390.7 ($df = 4488$). A TLI of 0.942 and a RNI of 0.949 suggest that the model is a good fit for the data, however, the RMSEA of 0.056 is outside the measure for a close fit (i.e. poorer than the .05 parameter) yet within the range of a reasonable fit (i.e. less than .08). Model 4 produced a chi square of 8618.0 ($df = 4913$), a TLI of 0.923 and a RNI of 0.933,
outcomes which suggest the model to be a good fit for the data. Model 4 also achieved a RMSEA of 0.052, which again is outside the measure for a close fit but within the range of a reasonable fit. Table 7.8 describes the factor correlation outcomes for the long form SDQIII-A self-other ratings achieved in Model 3, and Table 7.9 presents the short form SDQIII-A coefficients achieved for Model 4.

Convergent validities: Correlations between matching self-concept factors based on ratings by self and significant others. For Model 3 (SDQIII-A long form), factor correlation coefficients for self-other self-concept (SC) ratings ranged from 0.80 (Religion SC) to a modest 0.31 (Honesty SC) for the original 13 SDQ III factors, and from 0.63 (Work Value SC) to 0.35 (Tertiary Social SC) for the four new scales. A mean factor correlation coefficient of 0.58 (SD = .14) was achieved for the eleven non-academic scales of the shortened modified SDQ III, and 0.53 (SD = .10) for the five academic scales. An overall mean factor correlation of 0.57 (SD = .13) was produced for the entire 17 factors of the short form SDQIII-A. Model 4 (SDQIII-A short form) produced factor correlation coefficients ranging from 0.77 (Religion SC) to a modest 0.33 (Problem Solving SC) for the original 13 SDQ III factors, and from 0.81 (Work Value SC) to 0.43 (Tertiary Social SC) for the four new scales. A mean factor correlation coefficient of 0.59 (SD = .14) was achieved for the eleven non-academic scales, and 0.62 (SD = .13) for the five academic scales. An overall mean factor correlation of 0.51 (SD = .15) was produced for the entire 17 factors of the shortened modified version of the SDQ III. The outcomes achieved in the current study compare favourably with the factor correlation coefficients reported by Marsh (1992), where for the self-other agreement between the 13 original self-concept facets, mean factor coefficients range between 0.79 to 0.31 and achieve an overall mean factor correlation coefficient outcome of 0.57.

Divergent validities: Comparison of convergent validities with other correlations. Multitrait-multimethod matrices based on CFA were generated to test self-other agreement. Table 7.8 represents the self-other factor correlations resulting from the application of the long version (178 items) of the SDQIII-A (Model 3), and Table 7.9 presents the self-other factor correlation outcomes of the short version (102 items) of the SDQIII-A (Model 4).
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**Note.** Phys=Physical Ability SC; Appr=Physical Appearance SC; OSex=Opposite Sex SC; SSex=Same Sex SC; Pnt=Parents SC; Hons=Honesty SC; Relg=Religious SC; Emot=Emotional Stability SC; Genl=General Esteem SC; Prob=Problem Solving SC; Math=Math SC; Verb=Verbal SC; Acad=Academic SC; TSoc=Inter-Social SC; WVal=Work Value SC; TSoc=Tertiary Social SC; Tabl=Tertiary Ability SC. All correlations are presented without decimal points to conserve space. Bolded coefficients are test-retest correlations for the same self-concept factor between self and other ratings.
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Note: All correlations are presented without decimal points to conserve space. Bolded coefficients are test-retest correlations between the same self-concept factors for self and other ratings on the SDQ III-A. Phy=Physical Ability SC; Appr=Physical Appearance SC; GSex=Opposite Sex SC; SSex=Same Sex SC; Prnt=Parents SC; Hons=Honesty SC; Relg=Religious SC; Emot=Emotional Stability SC; Genl=General Esteen SC; Prob=Problem Solving SC; Math=Math SC; Verb=Verbal SC; Acad=Academic SC; ISoc=Inter-Soc SC; WVal=Work Value SC; TSoc=Tertiary Social SC; TAbil=Tertiary Ability SC.
As Table 7.8 demonstrates, not only are all 17 convergent validities significant (mean $r = .57$), but for each of the 544 possible comparisons between a convergent validity and another correlation in the same row or column of the square block (heterotrait-heteromethod) of coefficients, the validity is higher, and for 496 of the 544 (91%) possible comparisons between a convergent validity coefficient and other correlations in the same row or column of the two triangular blocks (heterotrait-monomethod), the validity coefficient is higher. Almost 46% of the validity coefficients that rate higher than the convergent validity in the Table occur between the correlations comparisons of the 13 original SDQ III subscales.

The multitrait-multimethod matrix described in Table 7.9 represents the self-other factor correlations resulting from the application of the short version (102 items) of the SDQIII-A (Model 4). As the Table demonstrates, again all 17 convergent validities are significant (mean $r = .59$), but for each of the 544 possible comparisons between a convergent validity and another correlation in the same row or column of the square block (heterotrait-heteromethod) of coefficients, the validity is higher; and for 516 of the 544 (95%) possible comparisons between a convergent validity coefficient and other correlations in the same row or column of the two triangular blocks (heterotrait-monomethod), the validity coefficient is higher. Sixty four percent of the validity coefficients that rate higher than the convergent validity in the Table occur between the correlations comparisons of the 13 original SDQ III subscales.

Analyses described above suggest results of Model 4 outcomes are comparable to those outcomes achieved in previous self-concept studies that investigate self-other agreement (e.g. see Marsh, 1992), providing strong support for the convergent and discriminant validity of the short form version of the SDQIII-A. Thus, despite a significant reduction in the number of items to measure the 13 self-concept facets in the SDQ III, the short modified version has lost little psychometric integrity and achieved similar outcomes to the established archive of SDQ III self-other agreement outcomes. Although Models 3 and 4 have produced similar outcomes, Model 4 however achieves improved results for the 4 new subscales without any substantial loss of integrity to the original 13 factors of the SDQ III.
Summary: Evaluation of Self and Significant Other’s Ratings of Multiple Dimensions of Self-Concept

Based on the results presented above, Hypothesis 5.1 which predicted that there would be consistently high self-other agreement on matching scales of the SDQIII-A, supporting the convergent validity of the self-concept ratings based upon self-ratings and significant others’ ratings, is supported. Further, Hypothesis 5.2 which predicted that there would be good support for discriminant validity in that convergent validities for each trait based upon self perceptions and significant others’ ratings will be consistently higher than correlations between that trait and other traits is also supported.

Summary

This chapter presented the results of Study 1 where modifications to extend the original version of the SDQ III to include another 42 items comprised in four new self-concept scales was examined. Each of the four new self-concept facets measured the impact of the mature-age student’s perceptions regarding their work, social and tertiary circumstances.

Model 1 presented item-pairs analysis of the original 13 SDQ III scales and the 4 new extended subscales in order to test the internal validity of each scale and to measure scale homogeneity and construct validity when applied in the mature-age college environment. Internal validity estimates were comparable to those previously reported by Marsh (1992), with reliability alpha coefficients providing solid construct validity outcomes. Comparison between the established factor correlation coefficients of the original 13 SDQ III scales and the factor coefficients achieved by the SDQ III applied in the TAFE setting indicated either the same or minor differences to the CFA outcomes achieved in this study. Analyses also indicated that the 4 new extended scales achieved similar outcomes to the thirteen original 13 factors developed by Marsh (1992), where correlations between like factors were high, while correlation coefficients between non-related factors were low. Results indicate that the 13 original SDQ III and 4 new extended factor scales appear to be the most parsimonious solution, where factor loading coefficients of all 17 self-concept scales
remained consistently high with minor or no cross-correlations occurring between them. The interpretability of the 4 new extended factor scales when combined with the SDQ III scales further supports the construct validity of the newly developed scales. Model 2 examined the individual 178 items of the extended SDQ III instrument in order to condense the original and extended scales to a more appropriate size for application in the college environment. Model 2 demonstrated that the reduced scale items of the instrument not only provided circumstances for much quicker application in the classroom but also maintained the sound psychometric properties of the full extended version of the instrument within acceptable parameters.

The final investigation for Study 1 involved self-other agreement comparisons, where the first design examined the outcomes of a 51 parcel CFA analyses that comprised 3 to 4 scale items per parcel from the extended SDQ III (Model 3), and a similar analyses that used only 2 scale items per parcel in the 51 parcel design from the short modified version of the SDQ III (Model 4). Model 4 not only identified that the short form of the SDQIII-A demonstrated similar psychometric properties to that of the long form of the SDQIII-A, but also determined similar relations between self-concept facets for mature-age students and the older adolescent and young adult population for which the original SDQ III was developed, outcomes important to confirmatory studies in SDQ III research.

This chapter has demonstrated that the extended scale and reduced scale-item version of the SDQ III to be a reliable and psychometrically sound self-concept measurement of the mature-age part-time student. The current findings advance our understanding of the distinctiveness of this group from the older adolescent and young adult population for which the SDQ III was originally designed, an issue that will be raised for further discussion in Chapter 10. A final and fundamentally crucial outcome to emanate from Study 1 is that the striving to modify and develop a self-concept instrument for localised application has provided a strong psychometric basis on which to conduct the major study for this thesis, thereby avoiding many of the methodological limitations common to attrition research.
CHAPTER 8
STUDY 2 RESULTS

Introduction

Study 2 was designed to (a) test within the TAFE environment the predictive value of factors posited in past attrition literature to predict student persistence, (b) test the impact of attrition intervention designs that are internally activated by the student or externally managed by the institution on TAFE students' persistence patterns, and (c) elucidate to what extent participants who have experienced an intervention and who choose to persist in TAFE studies display higher self-concept facets compared to students who have experienced an intervention and who choose to withdraw from TAFE studies. The purpose of this chapter is to report the results of Study 2 in the context of the hypotheses and research questions posed in Chapter 5. A series of logistic and multivariate analyses were undertaken to test the hypotheses and research questions (see Chapter 6 for an overview of statistical methods utilised).

Results of Time 1 Measures as Predictors of Student Persistence

Introduction

Research Questions 1.1–6.1 are in reference to a range of TAFE students' Time 1 measures derived from data collected at the commencement of the research period for Study 2 and examined for their predictive value in regard to student persistence behaviour. Measures investigated for predictive capability include: student demographic and background variables; student self-ratings of their perceptions regarding the impact of course participation on various aspects of their work, social and family life; student self-expectations of course continuance; initial social and academic self-concept facets; and significant other ratings of support for
the student. Correlation, multivariate and logistic analyses were used to determine the integrity of the predictive value of each of these variables (see Chapter 6 for detailed discussion of each of the analysis methods used).

Results Research Question 1.1: Demographic Variables as Predictors of Student Persistence Patterns.

Introduction. Research Question 1.1 enquired if for the Comparison and three Program groups, did the age and gender of the student, and the interaction of these two variables, typically identified in past attrition research as potential predictors of student persistence, prove to have predictive value in the current study. Correlation and logistic regression analysis was applied to examine the data.

Analyses. Logistic regression analysis of the attrition status with the age and gender of students participating in the Comparison and three Program groups (N = 519) produced non-significant outcomes for both age and gender. The interaction of both demographic variables also produced non-significant results regarding their predictive value of student persistence. Table 8.1 describes the outcomes for the direct and interaction effects for each of the variables.

Table 8.1
Analysis of Age and Gender and Interaction Effects on Student Persistence Patterns

<table>
<thead>
<tr>
<th>Variable</th>
<th>Cases</th>
<th>Beta</th>
<th>S.E.</th>
<th>df</th>
<th>Chi Square</th>
<th>Sign.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>519</td>
<td>0.02</td>
<td>0.03</td>
<td>1</td>
<td>0.35</td>
<td>0.19</td>
</tr>
<tr>
<td>Gender</td>
<td>519</td>
<td>0.13</td>
<td>0.60</td>
<td>1</td>
<td>0.05</td>
<td>0.99</td>
</tr>
<tr>
<td>Age x Gender</td>
<td>519</td>
<td>-0.00</td>
<td>0.02</td>
<td>1</td>
<td>0.06</td>
<td>0.82</td>
</tr>
</tbody>
</table>

Note: S.E. = Standard error, df = Degrees of freedom, Sign. = Significance of chi square.
* p < .05. ** p < .01.
Thus, in response to Research Question 1.1, the age and gender of the student, and the interaction effects of these two demographic variables, do not appear to be cogent predictors of TAFE student persistence patterns in the current study.

**Results Research Question 2.1: The Relation of Student Background Measures to Persistence Outcomes**

*Introduction.* Research Question 2.1 asked if the background variables of students participating in the three Program groups would prove to have predictive value in determining student non-persistence patterns. Three separate logistic regression models were used to examine the relationship of student background variables to the attrition status of the student: Model 2.1a examined the students' place of birth, marital status and socio-economic rating; Model 2.1b determined the effects of the students' level of school achievement and their pre-course achievement test score (AdultSAT; see Chapter 6 for further detail); and Model 2.1c examined the students' parental characteristics such as their place of birth, occupation, and their level of education.

Descriptive statistics regarding the background variables to be examined in this section are presented in Chapter 6, with respective coding and outcome tables located in Appendix E.1.

*Analyses.* In order to test the predictive potential regarding the relations of student background variables to persistence patterns, three logistic regression models were applied. Table 8.2 provides the Pearson correlation coefficients identifying the relations of student background variables to persistence outcomes, while Table 8.3 describes the outcomes of the regression analysis for the three models.

Table 8.2 demonstrates that for Model 2.1a, non-significant results were achieved for all three background variables in regard to their relations with the continuing/withdrawn status of the student. Further, non-significant regression outcomes presented in Table 8.3 suggest no predictive value of student persistence provided by the students' country of birth, their marital status, and the students' rating of their family's socio-economic status during high school attendance.
Table 8.2

**Correlation Matrix of Student Background Variable Relations to Student Persistence**

**Outcomes**

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>-0.07</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>-0.01</td>
<td>0.08</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>-0.07</td>
<td>0.04</td>
<td>-0.15**</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>0.06</td>
<td>-0.18**</td>
<td>0.05</td>
<td>0.08</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>-0.04</td>
<td>-0.05</td>
<td>0.25**</td>
<td>-0.11*</td>
<td>0.03</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>0.03</td>
<td>0.16**</td>
<td>0.01</td>
<td>0.31**</td>
<td>0.03</td>
<td>-0.09</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>-0.03</td>
<td>-0.03</td>
<td>0.03</td>
<td>0.29**</td>
<td>0.05</td>
<td>-0.00</td>
<td>0.53**</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>0.03</td>
<td>-0.04</td>
<td>0.03</td>
<td>0.31**</td>
<td>0.11</td>
<td>-0.06</td>
<td>0.20**</td>
<td>0.26**</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>-0.01</td>
<td>-0.08</td>
<td>-0.17**</td>
<td>0.16**</td>
<td>0.09</td>
<td>-0.07</td>
<td>0.10</td>
<td>0.30**</td>
<td>0.18**</td>
<td>1.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>-0.03</td>
<td>0.56**</td>
<td>0.00</td>
<td>-0.08</td>
<td>-0.21**</td>
<td>0.01</td>
<td>0.07</td>
<td>-0.10</td>
<td>-0.11</td>
<td>-0.03</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>-0.06</td>
<td>0.64**</td>
<td>-0.09</td>
<td>0.06</td>
<td>-0.13*</td>
<td>-0.10</td>
<td>0.10</td>
<td>-0.10</td>
<td>-0.07</td>
<td>-0.07</td>
<td>-0.64**</td>
<td>1.0</td>
</tr>
</tbody>
</table>

*Note.* 1 = Student attrition status (continuing/withdrawn), 2 = Country of birth, 3 = Marital status, 4 = Socio-economic status, 5 = Pre-course test, 6 = High school achievement, 7 = Father's education, 8 = Mother's education, 9 = Father's occupation, 10 = Mother's occupation, 11 = Father's birthplace, 12 = Mother's birthplace.

* p < .05.  ** p < .01.

Table 8.3

**Regression Analysis of Student Background Variable Relations to Persistence**

<table>
<thead>
<tr>
<th><strong>Background Variable</strong></th>
<th><strong>No. of Cases</strong></th>
<th><strong>df</strong></th>
<th><strong>Beta</strong></th>
<th><strong>Chi square</strong></th>
<th><strong>Sign.</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Student Background</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Country of birth</td>
<td>320</td>
<td>1</td>
<td>-0.28</td>
<td>1.26</td>
<td>0.26</td>
</tr>
<tr>
<td>3. Marital status</td>
<td>320</td>
<td>1</td>
<td>-0.04</td>
<td>0.00</td>
<td>0.95</td>
</tr>
<tr>
<td>4. Socio-economic status</td>
<td>319</td>
<td>1</td>
<td>-0.18</td>
<td>1.63</td>
<td>0.20</td>
</tr>
<tr>
<td><strong>Academic Background</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Pre-course test</td>
<td>273</td>
<td>1</td>
<td>0.02</td>
<td>2.38</td>
<td>0.12</td>
</tr>
<tr>
<td>6. High school achievement</td>
<td>273</td>
<td>1</td>
<td>0.02</td>
<td>0.02</td>
<td>0.88</td>
</tr>
<tr>
<td><strong>Parental Background</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Father's education</td>
<td>279</td>
<td>1</td>
<td>0.07</td>
<td>0.33</td>
<td>0.57</td>
</tr>
<tr>
<td>8. Mother's education</td>
<td>274</td>
<td>1</td>
<td>-0.06</td>
<td>0.29</td>
<td>0.59</td>
</tr>
<tr>
<td>9. Father's occupation</td>
<td>281</td>
<td>1</td>
<td>0.00</td>
<td>0.00</td>
<td>0.97</td>
</tr>
<tr>
<td>10. Mother's occupation</td>
<td>281</td>
<td>1</td>
<td>-0.03</td>
<td>0.32</td>
<td>0.57</td>
</tr>
<tr>
<td>11. Father's birthplace</td>
<td>282</td>
<td>1</td>
<td>0.18</td>
<td>0.13</td>
<td>0.71</td>
</tr>
<tr>
<td>12. Mother's birthplace</td>
<td>281</td>
<td>1</td>
<td>-0.41</td>
<td>1.66</td>
<td>0.20</td>
</tr>
</tbody>
</table>

*Note.* No. = number of participants, df = Degrees of freedom, Sign. = Significance of chi square.

* p < .05.  ** p < .01.
Student high school achievement and standardised pre-course entry tests have been identified in past attrition literature as potential predictors of student non-persistence patterns. Model 2.1b utilised correlation and logistic regression analyses to examine the students’ level of high school achievement (e.g. School Certificate, Higher School Certificate etc.) and pre-course test (i.e. AdultSAT) score outcomes to the students’ attrition status in order to determine the power of these variables to predict student persistence patterns in the current study. Pearson correlation coefficient outcomes indicated in Table 8.2 suggest no relations exist between the attrition status of the student and the students’ high school achievement level or pre-course test score. The logistic regression outcomes presented in Table 8.3 confirm that neither the student’s pre-course test achievement score nor their high school attainment outcome achieved statistical significance.

Model 2.1c investigated various parental measures included as part of the background variables of the student, such as level of education, type of work and birthplace, have also been shown in past attrition literature to predict student persistence patterns. Discussion regarding the method for measuring these variables appears in Chapter 6 and descriptive tables that demonstrate the coding for each of the variables can be viewed in Appendix E.1. Examination of the relations of these variables with the attrition status of the student in Table 8.2 again produced non-significant correlation coefficient outcomes, including: the education level of the students’ father and mother; fathers’ and mothers’ type of work; and fathers’ and mothers’ place of birth. As Table 8.3 demonstrates, logistic regression analyses confirmed non-significant outcomes for the parental variables, including fathers’ and mothers’ level of education; fathers’ and mothers’ occupations; and fathers’ and mothers’ place of birth.

**Summary: Relation of Student Background Measures to Persistence Outcomes**

The preceding analyses utilised three statistical models to investigate Research Question 2.1 that various academic and background variables would prove to be cogent predictors of student persistence. Model 2.1a examined the students’ high school level and pre-course standardised test score result; Model 2.1b considered the marital status, socio-economic status, and birthplace of the student; while Model 2.1c tested the birthplace, type of occupation and level of education of the students’ parents.
Correlation and logistic regression analyses demonstrated that none of the eleven academic and background variables examined in the current study proved to be statistically significant predictors of student persistence.

**Results Research Question 3.1: Student Perceptions of Course, Familial, Social and Work Demands as Predictors of Non-Persistence**

*Introduction.* Research Question 3.1 asked if mature-age students’ ratings of their perceptions of course participation, and work, social and family demands, reflecting numerous, established predictive variables in attrition literature, would also be identified as cogent predictors of non-persistence patterns in the current study of non-traditional TAFE students. Participant measures were collected at the commencement of the research period and were based on a 5-point Likert type scale, where (1) represents a “major negative impact” and (5) represents a “major positive impact” (see Chapter 6 for details of the rating scale format). A series of correlation and logistic regression analyses were used to test these measures of the three Program group participants for their predictive value.

*Analyses.* Data for this aspect of the study were collected at Time 1 (beginning of the research period) from participants of Program groups 1, 2 and 3. TAFE students’ perceptions regarding their course participation, and work, social and family demands were examined to determine if any served as cogent predictors of student persistence. Table 8.4 describes bivariate correlation coefficients reflecting the relations of these variables to students’ persistence patterns, while Table 8.5 lists the variables descriptive statistics together with their outcomes from the regression analyses.

Non-significant Pearson correlation coefficients resulted for a total of six variables when examined for their relation to student persistence outcomes, including students’ perceptions of course costs, family demands, college life, general social demands, study demands, and work demands. Each of the six variables was subsequently submitted to logistic regression analysis to determine the predictive value of each measure regarding student persistence patterns.
Table 8.4

Correlation Matrix of Relations Between Students’ Ratings of Their Perceptions of Course, Family, Social and Work Demands to Student Persistence Patterns

<table>
<thead>
<tr>
<th></th>
<th>Continue</th>
<th>Cost</th>
<th>Family</th>
<th>College</th>
<th>Social</th>
<th>Study</th>
<th>Work</th>
</tr>
</thead>
<tbody>
<tr>
<td>Persistence</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost</td>
<td>-0.017</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family</td>
<td>0.06</td>
<td>0.04</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>College</td>
<td>0.02</td>
<td>0.10</td>
<td>0.70**</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social</td>
<td>-0.06</td>
<td>0.09</td>
<td>0.42**</td>
<td>0.79**</td>
<td>1.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Study</td>
<td>-0.05</td>
<td>-0.20**</td>
<td>0.30**</td>
<td>0.33**</td>
<td>0.24**</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>Work</td>
<td>0.09</td>
<td>0.05</td>
<td>0.27**</td>
<td>0.67**</td>
<td>0.35**</td>
<td>0.21**</td>
<td>1.0</td>
</tr>
</tbody>
</table>

Note. Persistence=Student attrition status, Cost=Rating of course cost, Family=Rating of family demands, College=Rating of college life, Social=Rating of social demands, Study=Rating of study demands, Work=Rating of work life.
* p < .05  ** p < .01

Table 8.5

Regression Analysis of Students’ Ratings of Their Perceptions of Course, Family, Social and Work Demands to Student Persistence Patterns

<table>
<thead>
<tr>
<th>Facet of Student Perceptions</th>
<th>Mean</th>
<th>SD</th>
<th>df</th>
<th>t-Value</th>
<th>Chi square</th>
<th>Sign.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course cost</td>
<td>2.94</td>
<td>1.08</td>
<td>244</td>
<td>0.27</td>
<td>0.07</td>
<td>0.79</td>
</tr>
<tr>
<td>College life</td>
<td>3.33</td>
<td>0.78</td>
<td>244</td>
<td>0.38</td>
<td>0.10</td>
<td>0.75</td>
</tr>
<tr>
<td>Study demands</td>
<td>2.49</td>
<td>0.79</td>
<td>246</td>
<td>0.80</td>
<td>1.42</td>
<td>0.23</td>
</tr>
<tr>
<td>Family demands</td>
<td>3.15</td>
<td>1.05</td>
<td>246</td>
<td>-0.86</td>
<td>0.88</td>
<td>0.35</td>
</tr>
<tr>
<td>Social demands</td>
<td>3.20</td>
<td>1.10</td>
<td>244</td>
<td>0.88</td>
<td>2.54</td>
<td>0.11</td>
</tr>
<tr>
<td>Work demands</td>
<td>3.26</td>
<td>1.07</td>
<td>242</td>
<td>-1.42</td>
<td>1.89</td>
<td>0.17</td>
</tr>
</tbody>
</table>

Note. N=number of participants, df=Degrees of freedom, SD=standard deviation.
* p < .05  ** p < .01

As Table 8.5 demonstrates, regression analysis confirms that none of the six measures representing students’ perceptions of course costs, college life, and study, family, social and work demands proved to be statistically significant predictors of student persistence patterns.
Summary: Student Perceptions of Course, Familial, Social and Work Demands as Predictors of Non-Persistence

Thus, in response to Research Question 3.1, results of the analyses for the current study presented above do not support the contentions of previous attrition research that student ratings of their perceptions regarding course participation and work, family and social demands are reliable predictors of persistence.

Results Research Question 4.1 and 5.1: Agreement Between Student and Significant Other Ratings of Course Completion

Introduction. A growing belief has developed among higher education researchers that simply asking the student whether they believe they will or will not continue in their studies is a stronger predictor of persistence than any other single or multiple collection of measures (see Chapter 2 for further detail). Research Question 4.1 asked if students’ pre-course self-predictions of course completion collected in the current study would serve as a reliable predictor of persistence behaviour. At the commencement of the research period, students were asked to respond to a declarative statement (i.e. “I believe I will complete this course.”) by nominating a number on an eight-point scale ranging in weightings from 1 to 8, reflecting a judgement continuum from (1) "definitely false" to (8) "definitely true". Research Question 1 asked: What aspects of the student’s course participation, and work, social and family demands contribute to the student’s personal evaluation and prediction of course completion?

Research Question 5.1 asked if significant others’ ratings of support for the student in their program of study, and their prediction rating of the student’s likelihood of course completion would be reliable predictors of student persistence patterns, and to what extent these agree with student ratings. Significant other participants for Study 2 totalled 183. The mean age of the significant other sample was 35.8 years (SD = 12.86), ranging from 15 to 67 years. The mean number of years indicated by significant other respondents as having known the student was 15.3 years (SD = 10.8 years). Significant other measures were based on data collected at the commencement of the major research period. In response to declarative statements, ratings were nominated by
significant others from Likert-type scales, where for the significant other support measure, (1) represented "nil support" and (5) represented their "complete support", and for the significant other prediction of student course completion, an eight-point scale ranging in weightings from 1 to 8 was utilised, reflecting a judgement continuum from (1) "definitely false" to (8) "definitely true" was applied (see Chapter 6 for details of the rating scale formats). Correlation and logistic regression analyses were used to test the significance of these variables for their cogency as predictors of student attrition.

**Analyses.** At the commencement of Study 2, students \(N = 324\) participating in Program groups 1, 2 and 3 were asked to predict the likelihood of their course completion (see Chapter 6 for further details). Table 8.6 presents the bivariate correlation coefficients of the relations between the students' continuing/withdrawn status, their self-prediction rating of course completion, and the students' significant other rating of support and their prediction rating of course completion. Table 8.7 presents descriptive and logistic regression equation outcomes achieved in the analyses of these variables.

Table 8.6  
**Correlation Matrix of Student and Significant Other Ratings of Persistence Prediction**

<table>
<thead>
<tr>
<th></th>
<th>Continue</th>
<th>Student Prediction</th>
<th>SO Support</th>
<th>SO Prediction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Persistence</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student prediction rating</td>
<td>-.02</td>
<td>1.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SO Support of student</td>
<td>-.10</td>
<td>.01</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>SO Prediction of persistence</td>
<td>.11</td>
<td>.27**</td>
<td>-.01</td>
<td>1.0</td>
</tr>
</tbody>
</table>

*Note. Persistence=Student attrition status (continuing/withdrawn), SO=Significant Other.
*p < .05. **p < .01.*

As Table 8.6 demonstrates, Pearson correlation analyses indicate no statistically significant relations between the students' self-prediction rating of course completion and the attrition status of the student. Logistic regression analysis described in Table 8.7 confirms a non-significant outcome regarding the predictive value of the student's expectation rating taken at Time 1 and the persistence behaviour of the
student. Thus, in response to Research Question 4.1, results suggest that students’ self-prediction rating of course completion is not a reliable predictor of TAFE student persistence behaviour.

Table 8.7

Regression Analysis of Student and Significant Other Ratings of Persistence Prediction

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>df</th>
<th>t-Value</th>
<th>Chi square</th>
<th>Sign.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student prediction rating</td>
<td>6.75</td>
<td>1.27</td>
<td>322</td>
<td>0.19</td>
<td>0.36</td>
<td>0.85</td>
</tr>
<tr>
<td>SO Support of student</td>
<td>4.56</td>
<td>0.83</td>
<td>177</td>
<td>1.29</td>
<td>1.77</td>
<td>0.18</td>
</tr>
<tr>
<td>SO Prediction of persistence</td>
<td>6.63</td>
<td>1.27</td>
<td>181</td>
<td>-1.44</td>
<td>2.06</td>
<td>0.15</td>
</tr>
</tbody>
</table>

Note. SO=Significant Other, SD=Standard Deviation, df=Degrees of freedom, Sign.=Significance of chi square.
* p < .05. ** p < .01.

Past attrition literature has also highlighted the importance of relations between students’ significant others and student persistence patterns. However, Pearson correlation analysis of data presented in Table 8.6 indicates non-significant relations between the students’ attrition status and the level of significant other support for the student in their program of study and the significant others’ prediction of course completion by the student.

Also presented in Table 8.7 are the logistic regression analyses which confirm these non-significant relations. As the Table demonstrates, outcomes indicate that neither the significant others’ level of support for the student in their program of study, nor the prediction rating of student persistence by the significant other proved to be cogent predictors of TAFE student persistence. However, when examining the relation between the students’ course completion prediction with the prediction rating by their significant other. Pearson correlation analysis revealed a statistically significant and positive relation between the two factors (r = 0.27, p ≤ 0.01). This aspect is again raised for discussion in Chapter 10.
Summary: Agreement Between Student and Significant Other Ratings of Course Completion

Thus, in response to Research Question 4.1, analyses indicate that students' self-prediction rating of course completion in the current study is not a reliable predictor of TAFE student persistence behaviour. Further, in response to Research Question 5.1 and despite previous attrition research to the contrary, ratings collected from students' significant others regarding measures such as their expectations of and commitment to the TAFE student's persistence provide no evidence of significant effect on persistence outcomes. Analysis of TAFE students' and significant others' ratings predicting course completion however, proved to be statistically significant and positively related.

Results Research Question 6.1: Time 1 Self-Concept Measures as Predictors of Student Persistence

Introduction. Research Question 6.1 asked if various facets of the academic and non-academic student self-concept measures taken at Time 1 (the commencement of the research period) would prove reliable predictors of student persistence. Self-concept measures were based on student responses to declarative statements by nominating a number on an eight-point scale ranging in weightings from 1 to 8, reflecting a judgement continuum from (1) "definitely false" to (8) "definitely true" (see Chapter 6 for further detail of the method regarding self-concept measures). Two logistic regression models were developed to analyse the data for this aspect of Study 2. The first model (Model 6.1a) examined each of the 17 Time 1 self-concept facets separately in order to determine their individual predictive value regarding student persistence patterns, while the second regression model (Model 6.1b) considered the extent of contribution made by each of the self-concept domains to the overall self-concept model chi square to predict the attrition status of TAFE students.

Analyses. Model 6.1a separately examined 17 individual facets of self-concept in order to determine the value of each facet to predict student persistence patterns. Table 8.8 identifies descriptive and chi square model outcomes for each of the 17 Time 1 self-concept facets together with the bivariate correlation coefficient describing the
relations between the students continuing/withdrawn status and each of the self-concept facets.

Pearson correlation coefficients presented in Table 8.8 describe non-significant relations between each of the self-concept facets and the continuing/withdrawn status of Program students.

Table 8.8

*Predictive Value of Time 1 Self-Concept Outcomes to the Persistence Patterns of TAFE Students*

<table>
<thead>
<tr>
<th>Self-Concept Facets</th>
<th>Scale Mean (N = 322)</th>
<th>SD</th>
<th>Beta</th>
<th>df</th>
<th>Chi square</th>
<th>Sign.</th>
<th>r</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical</td>
<td>5.05</td>
<td>1.64</td>
<td>-0.14</td>
<td>1</td>
<td>4.98</td>
<td>0.42</td>
<td>-0.04</td>
</tr>
<tr>
<td>Appearance</td>
<td>4.88</td>
<td>1.30</td>
<td>0.15</td>
<td>1</td>
<td>9.91</td>
<td>0.08</td>
<td>0.02</td>
</tr>
<tr>
<td>Opposite Sex</td>
<td>5.64</td>
<td>1.30</td>
<td>0.20</td>
<td>1</td>
<td>3.45</td>
<td>0.63</td>
<td>0.07</td>
</tr>
<tr>
<td>Same Sex</td>
<td>5.72</td>
<td>1.05</td>
<td>0.20</td>
<td>1</td>
<td>4.82</td>
<td>0.44</td>
<td>0.04</td>
</tr>
<tr>
<td>Parents</td>
<td>5.44</td>
<td>1.45</td>
<td>0.10</td>
<td>1</td>
<td>7.24</td>
<td>0.20</td>
<td>0.08</td>
</tr>
<tr>
<td>Honesty</td>
<td>6.09</td>
<td>0.90</td>
<td>-0.31</td>
<td>1</td>
<td>10.60</td>
<td>0.06</td>
<td>-1.14</td>
</tr>
<tr>
<td>Religion</td>
<td>4.83</td>
<td>1.82</td>
<td>-0.05</td>
<td>1</td>
<td>6.89</td>
<td>0.23</td>
<td>-0.06</td>
</tr>
<tr>
<td>Emotional Stab.</td>
<td>5.01</td>
<td>1.24</td>
<td>-0.07</td>
<td>1</td>
<td>3.24</td>
<td>0.66</td>
<td>-0.01</td>
</tr>
<tr>
<td>General Esteem</td>
<td>5.93</td>
<td>1.26</td>
<td>-0.10</td>
<td>1</td>
<td>3.89</td>
<td>0.57</td>
<td>-0.02</td>
</tr>
<tr>
<td>Problem Solving</td>
<td>5.32</td>
<td>1.04</td>
<td>-0.16</td>
<td>1</td>
<td>4.52</td>
<td>0.48</td>
<td>-0.09</td>
</tr>
<tr>
<td>Math</td>
<td>4.32</td>
<td>1.63</td>
<td>0.01</td>
<td>1</td>
<td>3.55</td>
<td>0.62</td>
<td>-0.00</td>
</tr>
<tr>
<td>Verbal</td>
<td>5.71</td>
<td>1.12</td>
<td>-0.04</td>
<td>1</td>
<td>2.01</td>
<td>0.85</td>
<td>-0.01</td>
</tr>
<tr>
<td>Academic</td>
<td>5.76</td>
<td>1.05</td>
<td>-0.02</td>
<td>1</td>
<td>4.98</td>
<td>0.42</td>
<td>-0.07</td>
</tr>
<tr>
<td>Inter-Social</td>
<td>5.90</td>
<td>1.10</td>
<td>0.03</td>
<td>1</td>
<td>1.93</td>
<td>0.86</td>
<td>0.00</td>
</tr>
<tr>
<td>Work Value</td>
<td>5.30</td>
<td>1.24</td>
<td>0.01</td>
<td>1</td>
<td>5.85</td>
<td>0.32</td>
<td>-0.01</td>
</tr>
<tr>
<td>Tertiary Social</td>
<td>5.71</td>
<td>0.92</td>
<td>-0.28</td>
<td>1</td>
<td>9.25</td>
<td>0.10</td>
<td>-0.09</td>
</tr>
<tr>
<td>Tertiary Ability</td>
<td>5.95</td>
<td>1.00</td>
<td>0.05</td>
<td>1</td>
<td>3.54</td>
<td>0.62</td>
<td>-0.02</td>
</tr>
</tbody>
</table>

Note. N=number of participants, SD=standard deviation, df=degrees of freedom, r=Pearson correlation coefficient of each self-concept facet with student attrition status. A statistically significant outcome for any of the Time 1 self-concept facets indicates a relation of that factor to the continuing/withdrawn status of Program group students.

* p < .05. ** p < .01.

Results of regression Model 6.1a also presented in Table 8.8 indicate that chi square statistics were non-significant for each of the academic (Maths, Verbal, Problem-solving, Academic and Tertiary Ability) and non-academic (Physical Ability, Physical

Logistic regression analysis of the 17 student self-concept measures taken at the beginning of the research period was applied to determine to what extent each of the self-concept facets contributed to the prediction of persistence or withdrawal of the student from their TAFE studies. Following the entry of all seventeen self-concept facets into the regression equation, Model 6.1b also proved non-significant (chi square = 19.942, df = 17, p = 0.277) regarding the prediction of student persistence patterns. Therefore in response to Research Question 6.1, analyses regarding the 17 student Time 1 measures of self-concept, examined individually or collectively, suggest these measures are not cogent predictors of student persistence behaviour.

**Summary of Results: Time 1 Measures as Predictors of Student Persistence**

Discovering a variable that would accurately predict student persistence patterns has been a major focus throughout more than eighty years of attrition research in higher education. For every study that identifies a particular variable (or a combination of variables) to have potential predictive power of student persistence patterns, outcomes from other studies will invariably refute such findings. The purpose of this aspect of the chapter was to test a selection of variables identified in past attrition literature as potential predictors of student persistence patterns for the current study. Each of the TAFE student Time 1 measures was collected at the beginning of the research period for Study 2. The direct and interaction effects of demographic variables such as age and gender regarding student persistence patterns formed the basis of the initial investigation (Research Question 1.1). Analyses demonstrated that neither the age nor the gender of the student, or the interaction of these two variables, proved to be statistically significant predictors of TAFE student persistence.

Correlation and logistic regression analyses demonstrated that none of the eleven academic and background variables identified in Research Question 2.1 (e.g. students’ high school level and pre-course standardised test score result; students’ country of birth, marital and socio-economic status; the birthplace, type of occupation
and level of education of the students' parents) proved to be statistically significant predictors of student persistence.

Research Question 3.1 asked if mature-age students' Time 1 Lifestyles ratings of their perceptions of course participation, and work, social and family demands, which reflected a total of six established predictive variables in past attrition literature, would be identified as cogent predictors of non-persistence patterns in the current study. Analysis of TAFE student perceptions of course costs, college life, and study, family, social and work demands confirmed non-significant relations between these six Lifestyles variables and the persistence patterns of TAFE students.

Increasingly, attrition researchers have found that student's self-rating of expectations regarding course completion taken at the commencement of their program of study is a cogent predictor of the student's actual persistence or withdrawal behaviour. Research Question 4.1 therefore investigated TAFE students' self-prediction rating of course completion for the current study, resulting in outcomes that suggested students' self-predictions in this regard had no significant relation to the attrition status of the student.

Research Question 5.1 examined whether significant others' ratings of support for the student in their program of study, and the significant other's prediction rating of the student's likelihood of course completion would be reliable predictors of student persistence patterns. Analyses revealed that neither the significant others' rating of their level of support for, nor their prediction of course completion by the student provided any prediction value in regard to student persistence patterns.

Two logistic regression models were developed to test Research Question 6.1 which postulated that various facets of the academic and non-academic student self-concept measures taken at Time 1 would prove reliable predictors of student persistence patterns. Model 6.1a examined each of the 17 Time 1 self-concept facets separately in order to determine their individual predictive value of student persistence patterns. Outcomes for each of the 17 facets proved non-significant. The second self-concept regression design for this aspect of Study 2, Model 6.1b considered the extent of contribution made by each of the self-concept domains to the overall self-concept
model chi square to predict the attrition status of TAFE students. Outcomes again indicated a non-significant relation between the entire set of 17 self-concept facets and the attrition status of the student.

The Impact of Self-Concept Enhancement and Attrition Interventions on TAFE Student Persistence Patterns

Introduction

This aspect of the study examines the impact of a set of intervention strategies applied to one Comparison and three Program groups (see Chapter 6 for further detail regarding sample group treatments). In short, the first intervention strategy is referred to as a Base Treatment and comprises student in-class self-concept exploration exercises designed to improve various aspects of student self-concepts and self-understanding. Students participating in Program groups 1, 2 and 3 were exposed to the Base Treatment intervention while students of the Comparison group were not. The second set of interventions was also applied to the three Program groups only, and comprised three separate treatment strategies: Base Treatment only Program 1; Student-Activated Program 2; and Institution-Activated Program 3.

Students participating in the current study were members of 47 intact classes randomly assigned to participate in one of four groups that comprised the research model (see Chapter 6 for further detail of group assignment). An initial and integral aspect of Study 2 was to compare the characteristics of each of the three Program groups and the Comparison sample to ensure each was statistically similar within acceptable levels of significance. Described in Chapter 6 are the data from a total of 26 variables collected at the commencement of the research period which were submitted to various analyses to determine any differences between the four sample groups. Non-significant differences resulted for the sample groups regarding all 26 variables, including: a pre-test acumen achievement measure (AdultSAT); the demographic and background variables of age, gender, parents’ and students’ country of birth, parents’ level of education, parents’ occupation during secondary school; and 17 self-concept facet scores. Thus the results of the analyses undertaken in preparation for the experimental intervention applications of Study 2 demonstrated
that each of the four sample groups (i.e. the Comparison and Program groups 1, 2 and 3) were statistically equivalent within acceptable parameters.

**Results Hypotheses 7.1–8.2: The Impact of Intervention Strategies on TAFE Student Persistence Patterns**

**Introduction.** To investigate the influence of the intervention strategies applied in the current study on TAFE student persistence patterns, three hypotheses were generated. Hypothesis 7.1 proposed that beginning TAFE students who had experienced a Base Treatment intervention only, a Base Treatment intervention combined with a Student-Activated intervention, or a Base Treatment combined with an Institution-Activated intervention would display statistically significant higher persistence rates compared to a Comparison group of TAFE students who did not receive these interventions. Hypothesis 8.1 postulated that beginning TAFE students who had experienced a Base Treatment combined with a Student-Activated intervention or a Base Treatment combined with an Institution-Activated intervention would display statistically significant higher persistence rates compared to students who had participated in a Base Treatment only intervention. Hypothesis 8.2 posited that beginning TAFE students who had experienced a Base Treatment combined with a Student-Activated intervention would display statistically significant higher persistence rates compared to students who had participated in a Base Treatment combined with an Institution-Activated intervention. Correlation and logistic regression statistics were utilised in the analyses to determine any significant differences in persistence rates between the sample groups.

**Analyses.** This aspect of Study 2 comprised an investigation of student persistence outcomes for four separate sample groups comprising Study 2. Although participants of Program groups 1, 2 and 3 were exposed to the Base Treatment intervention (i.e. self-exploration), they also participated in separate forms of Treatment Extension (i.e. Base Treatment only, Student-Activated, and Institution-Activated interventions). Table 8.9 details the bivariate correlation coefficient outcomes describing the relations between the continuing/withdrawn status of the student and the Comparison and three Program groups and their contrast combinations.
Pearson correlation analyses described in Table 8.9 indicate that a negative and statistically significant correlation coefficient exists between the attrition status of the student and the Comparison group \((r = -0.3516, p \leq 0.01)\), and that positive and statistically significant correlation outcomes were present between the attrition status of the student and the Base Treatment only Program 1 group \((r = 0.1607, p \leq 0.01)\); the Student-Activated Program 2 group \((r = 0.112, p \leq 0.01)\); and the Institution-Activated Program 3 group \((r = 0.1567, p \leq 0.01)\).

Table 8.9

*Correlation Matrix of Relations Between TAFE Student Persistence Rates and the Comparison and Three Program Groups (N = 531)*

<table>
<thead>
<tr>
<th></th>
<th>Status</th>
<th>C1</th>
<th>P1</th>
<th>P2</th>
<th>P3</th>
<th>C1vRest</th>
<th>P1vP2P3</th>
<th>P2vP3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C1</td>
<td>-.35**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P1</td>
<td>.16**</td>
<td>-.40**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P2</td>
<td>.11**</td>
<td>-.44**</td>
<td>-.27**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P3</td>
<td>.16**</td>
<td>-.37**</td>
<td>-.23**</td>
<td>-.26**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C1vRest</td>
<td>-.35**</td>
<td>1.00**</td>
<td>-.40**</td>
<td>-.44**</td>
<td>-.37**</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P1vP2P3</td>
<td>.02</td>
<td>.01</td>
<td>.91**</td>
<td>-.50**</td>
<td>-.42**</td>
<td>.01</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>P2vP3</td>
<td>-.02</td>
<td>-.07</td>
<td>-.04</td>
<td>.82**</td>
<td>-.77**</td>
<td>-.07</td>
<td>-.08</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Note. Status=Students’ attrition status, C1=Comparison sample \((n = 207)\), P1=Program 1 \((n = 105)\), P2=Program 2 \((n = 124)\), P3=Program 3 \((n = 95)\), REST=Program groups 1, 2 and 3. In regard to negative coefficients, e.g. C1vREST, the Comparison group is contrasted to Program groups 1, 2 and 3, and a negative outcome means that the Comparison group score was lower than scores achieved by Program groups 1, 2 and 3; that P1 was lower than P2; and that P1 and P2 were lower than P3. S.E. = Standard Error, df = Degrees of freedom.

* \(p < .05\). ** \(p < .01\).

Table 8.10 presents the outcomes of the logistic regression model analyses which examine the effects of treatment and non-treatment enhancement for Program (Program groups 1, 2 and 3) and Comparison groups regarding persistence rates. The logistic regression model presented in Table 8.10 confirms that a statistically significant difference existed only between the Comparison sample group and the three Program groups (model chi square = 62.705, \(df = 1\), \(p \leq 0.001\)) regarding TAFE student persistence rates.
Table 8.10

*Logistic Regression Analysis of TAFE Student Persistence Rates and the Comparison and Three Program Groups (N = 531)*

<table>
<thead>
<tr>
<th>Source</th>
<th>Beta</th>
<th>S.E.</th>
<th>Df</th>
<th>Chi Square</th>
<th>Sign.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1vP1+P2+P3</td>
<td>-0.39</td>
<td>0.05</td>
<td>1</td>
<td>62.71***</td>
<td>0.001</td>
</tr>
<tr>
<td>P1vP2+P3</td>
<td>0.04</td>
<td>0.08</td>
<td>1</td>
<td>0.22</td>
<td>0.64</td>
</tr>
<tr>
<td>P2vP3</td>
<td>-0.14</td>
<td>0.14</td>
<td>1</td>
<td>0.10</td>
<td>0.32</td>
</tr>
<tr>
<td>Regression</td>
<td>0.19</td>
<td>0.10</td>
<td>1</td>
<td>3.85*</td>
<td>0.05</td>
</tr>
</tbody>
</table>

*Note.* S.E. = Standard Error, df = Degrees of freedom, Sign. = Significance of chi, C1 = Comparison sample, P1 = Program 1, P2 = Program 2, P3 = Program 3. In regard to negative coefficients, e.g., C1vP1+P2+P3, the Comparison group is contrasted to Program groups 1, 2 and 3, and a negative outcome means that the Comparison group score was lower than scores achieved by Program groups 1, 2 and 3.

* p < .05. ** p < .01. *** p < .001.

Thus the hypothesis (Hypothesis 7.1) which proposed that beginning TAFE students who had experienced a Base Treatment intervention only, a Base Treatment intervention combined with a Student-Activated intervention, or a Base Treatment combined with an Institution-Activated intervention would display statistically significant persistence rates compared to a Comparison group of TAFE students who did not receive these interventions is therefore supported.

Descriptive statistics provide further support regarding the significant and positive improvements in persistence outcomes for the three Program groups in contrast to the Comparison sample. Table 8.11 describes the percentages of continuing and withdrawn students for each of the sample groups at the end of the primary research period (end of Term 1).
Table 8.11

Percentages of Continuing and Withdrawn Students by Student Comparison and Program Groups (N = 531)

<table>
<thead>
<tr>
<th>Study 2 Sample Groups</th>
<th>% of Students Continuing</th>
<th>% of Students Withdrawn</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program Group 1 (Base Treatment only)</td>
<td>64.8</td>
<td>35.2</td>
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<tr>
<td>Program Group 2 (Student-Activated Treatment)</td>
<td>59.7</td>
<td>40.3</td>
</tr>
<tr>
<td>Program Group 3 (Institution-Activated Treatment)</td>
<td>67.4</td>
<td>32.6</td>
</tr>
<tr>
<td>Comparison Sample Group</td>
<td>56.6</td>
<td>43.4</td>
</tr>
</tbody>
</table>

An examination of the attrition percentage outcomes between the three Program and Comparison groups presented in Table 8.11 suggests that the Institution-Activated Program 3 participants performed 7.7 percent better in the number of continuing students than the Student-Activated Program 2 participants, and 10.8 percent better than the Comparison sample.

Hypothesis 8.1 posited that TAFE students who had experienced a Base Treatment combined with a Student-Activated intervention or Base Treatment combined with an Institution-Activated intervention would display statistically significant higher persistence rates compared to students who had participated in a Base Treatment only intervention. Table 8.9 identifies that although significant Pearson correlation coefficients were indicated for contrasts between the Base Treatment only Program 1 to the Student-Activated Treatment Extension Program 2 and the Institution-Activated Program 3, and between the Institution-Activated Program 3 and the Student-Activated Program 2, the more rigorous logistic regression described in Table 8.10 suggests that no significant differences in persistence rates were evident when the Base Treatment only Program 1 was contrasted to the Student-Activated Program 2 and the Institution-Activated Program 3. The hypothesis (Hypothesis 8.1) that beginning TAFE students who had experienced a Base Treatment combined with a Student-Activated intervention or Base Treatment
combined with an Institution-Activated intervention would display statistically significant higher persistence rates compared to students who had participated in a Base Treatment only intervention is therefore rejected.

It was further hypothesised (Hypothesis 8.2) that beginning TAFE students who had experienced a Base Treatment combined with a Student-Activated intervention would display statistically significant higher persistence rates compared to students who had participated in a Base Treatment combined with an Institution-Activated intervention. Results outlined in Table 8.10 also indicate that when the Student-Activated Program 2 was contrasted to the Institution-Activated Program 3, non-significant differences resulted. The hypothesis (Hypothesis 8.2) that beginning TAFE students who had experienced a Base Treatment combined with a Student-Activated intervention would display statistically significant higher persistence rates compared to students who had participated in a Base Treatment combined with an Institution-Activated intervention is therefore not supported.

Summary of Results: The Impact of Self-Concept Enhancement and Attrition Interventions on TAFE Student Persistence Patterns

In summary, this aspect of the study examined the impact of a set of intervention strategies applied to one Comparison and three Program groups. The first intervention strategy is referred to as a Base Treatment and comprised student in-class self-exploration exercises. Designed to improve various aspects of student self-concepts, students participating in Program groups 1, 2 and 3 were exposed to the Base Treatment intervention while students of the Comparison group were not. The second set of interventions was applied to the three Program groups only, and comprised three separate treatment strategies: Base Treatment only Program 1; Student-Activated Program 2; and Institution-Activated Program 3.

Results of the preceding analyses found that student persistence rates were significantly higher for the Base Treatment only, and the Student-Activated and Institution-Activated Program groups than the Comparison group. However, further logistic regression analysis of the three Program groups indicates no statistically significant differences in persistence rates between the sample groups regardless of their
exposure to a Base Treatment only, a Student-Activated or an Institution-Activated intervention design. Results do suggest, however, that TAFE students participating in the Base Treatment intervention (Program groups 1, 2 and 3) who were exposed to self-exploration exercises, in contrast to the Comparison sample who were not exposed to any form of intervention, achieved significantly higher retention outcomes as a direct result of exposure to the self-concept enhancement program applied in the current study.

Percentage point gains made by the three Program groups support the findings that collectively, and as a result of the Base Treatment intervention program to which each of the three Program groups were exposed, they achieved significantly improved persistence rates over the Comparison sample. Of particular note was the performance of the Institution-Activated Program 3 group who achieved the highest percentage in student retention (i.e. 10.8% improved retention over the Comparison sample).

The Impact of Self-Concept Enhancement and Attrition Interventions on Facets of TAFE Student Self-Concept

Introduction

The researcher-devised model of attrition designed for the current study (see Chapters 2 and 6) postulates that students’ pre-course self-worth may be impacted by program attendance and may form the basis from which the student begins re-evaluating the self. Positive self-concept outcomes during this period of re-evaluation are posited by the model to be pivotal to the continuation of the student in their program of study, and conversely, should re-evaluation outcomes impact negatively on the student, the model proposes that lower self-worth levels may result in the student entering into a process of disengagement and subsequent withdrawal from their program of study. The following section therefore investigates the changes in student self-concept levels as a result of participating in their program of study.
Results Research Questions 9.1–2: The Impact of Self-Concept Enhancement and Attrition Interventions on Self-Concept

Introduction. Past attrition literature alludes to the potential for adults returning to higher education after many years of absence to experience reduced self-concept levels as a result of the personal, academic and social demands of undertaking a course of study. It is theorised that a possible implication of student withdrawal may be reduced levels of student self-worth levels, and this circumstance has subsequently been reflected in the researcher-devised theoretical model of non-traditional student attrition presented in Chapter 2.

Research Question 9.1 therefore inquired to what extent are student persistence patterns related to multiple facets of self-concept. Further, recent advances in self-concept research suggest that intervention designs are more likely to be successful if the goals of the intervention target specific self-concept facets relevant to the intervention. Research Question 9.2 therefore asked to what extent did the self-concept enhancement/attrition interventions utilised in the current study impact on facets of self-concept most relevant to the goals of the intervention, and do such effects vary as a function of student persistence. Multivariate analysis of variance utilising specially designed orthogonal contrasts have been applied to examine the data in this investigation.

Analyses. This investigation examines the impact of self-concept enhancement and attrition interventions on multidimensional measures of TAFE student self-concepts. Previous discussion in the chapter (see also Chapter 6) noted that the outcomes of 26 student Time 1 demographic, background and self-concept measures indicated no statistically significant differences as a function student sample group assignment or persistence outcomes. A multivariate analysis of variance (MANOVA) was applied to each of the 17 self-concept variables used in the study, where special orthogonal contrasts were constructed for the three Program groups.

The first contrast (P1vP2+P3) examines the self-concept mean of Program 1 compared to the mean of Programs 2 and 3, while the second contrast (P2vP3) tests the relation between Program 2 and Program 3. Positive values therefore suggest that
for the first orthogonal contrast, the self-concept mean of Programs 2 and 3 is of higher value than that of Program 1, and for the second contrast, the mean of Program 3 is of higher value than that of Program 2.

A further orthogonal contrast was constructed for examination of the continuing/withdrawn outcome of the student, where the withdrawn status (1) was subtracted from the continuing status (0) so that positive values indicated higher scores for the continuing category. A further special design for the Manova analysis was constructed to achieve all single degree of freedom tests in order to identify interaction effects between the self-concept construct being examined and the attrition status of the student. Interaction effects therefore indicate the extent to which the effect of the intervention contrast varies depending on whether the student has persisted in their program of study, and positive interaction effects indicate that program effects were larger for persisting students than for non-persisting students.

A total of 17 academic (i.e. Math, Verbal, Academic, Problem Solving and Tertiary Ability) and non-academic (i.e. Emotional Stability, Physical Appearance and Ability, Inter-Social, Tertiary Social, Opposite and Same Sex, Honesty, Work Value, Parent, Religion and General Esteem) Time 1 and Time 2 self-concept measures of participants for the three Program groups formed the basis of the first investigation. Self-concept facets were individually submitted to multivariate analysis of variance (MANOVA) and contrasted to the student's actual attrition status, utilising the self-concept outcomes reported for the same students at Time 1 as a covariate in the analyses.

Table 8.12 lists the means and standard deviations for each of the 17 self-concept facets at Time 1 (the commencement of the research period) and Time 2 (the completion of the research period) for students of Program groups 1, 2 and 3. Table 8.13 presents the multivariate analysis of variance statistics for each of the 17 self-concept facets examined in the study, with indications of changes in student self-concept measures over time, together with the direct and interaction effects of student Program groups and persistence outcomes also presented.
Table 8.12
Means and Standard Deviations for Time 1 and Time 2 Self-Concept Facets of TAFE Students for Program Groups 1, 2 and 3 \((N = 324)\)

<table>
<thead>
<tr>
<th>Self-concepts</th>
<th>Time 1</th>
<th></th>
<th>Time 2</th>
<th></th>
<th>Time 1</th>
<th></th>
<th>Time 2</th>
<th></th>
</tr>
</thead>
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<tr>
<td></td>
<td>(M)</td>
<td>(SD)</td>
<td>(M)</td>
<td>(SD)</td>
<td>(M)</td>
<td>(SD)</td>
<td>(M)</td>
<td>(SD)</td>
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<td>5.11</td>
<td>1.28</td>
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<td>.91</td>
<td>6.06</td>
<td>1.07</td>
</tr>
</tbody>
</table>

Note. \(N=\) number of participants, \(M=\) mean, \(SD=\) standard deviation.
### Table 8.13

**Multivariate Analysis of Variance of Time 1 and Time 2 Self-Concept Facets by Direct and Interaction Effects of Student Program Groups and Persistence Outcomes**

<table>
<thead>
<tr>
<th>Source</th>
<th>t-Value</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>Sig. of F</th>
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<td><strong>Emotional Stability SC (N = 316)</strong></td>
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<td>189.75</td>
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<tr>
<td>P1vP2+P3</td>
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<td>1</td>
<td>0.84</td>
<td>1.05</td>
<td>.306</td>
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<tr>
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<td>2.59</td>
<td>3.24</td>
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<tr>
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<td>8.72</td>
<td>10.91</td>
<td>.001</td>
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<tr>
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<td>1</td>
<td>5.74</td>
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<td>P2vP3 x Persistence</td>
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<td><strong>Physical Ability SC (N = 316)</strong></td>
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<tr>
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<td>1.22</td>
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</table>

Note: SC = Self-concept, T1 = Time 1, P1vP2+P3 = Program group 3 and Program group 2 versus Program group 1, P2vP3 = Program group 3 versus Program group 2, Persistence = Student outcomes of continuing/withdrawn, d = Degrees of freedom, MS = Mean squares, $F = F$ ratio statistic, Sig. of $F = $Significance of $F$ statistic. For the contrast P1vP2+P3, higher positive scores mean that P2+P3 is greater than P1, and for P2vP3 positive scores indicate that P3 is greater than P2.
Table 8.13 (continued)

Multivariate Analysis of Variance of Time 1 and Time 2 Self-Concept Facets by Direct and Interaction Effects of Student Program Groups and Persistence Outcomes

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<tr>
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<td>1</td>
<td>1.47</td>
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Table 8.13 (continued)

Multivariate Analysis of Variance of Time 1 and Time 2 Self-Concept Facets by Direct and Interaction Effects of Student Program Groups and Persistence Outcomes

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<th>Sig. of F</th>
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<td>28.01</td>
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<td>2.80</td>
<td>3.46</td>
<td>.064</td>
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<td>1</td>
<td>3.37</td>
<td>4.16</td>
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<td></td>
<td>0.81</td>
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</tbody>
</table>

| **Verbal SC (N = 316)** |         |    |      |       |           |
| Matching T1 Pretest SC facet | 21.77   | 1  | 214.10 | 474.08 | .000      |
| P1vP2+P3 | 1.21     | 1  | 0.66  | 1.46  | .227      |
| P2vP3   | -1.49    | 1  | 1.00  | 2.21  | .139      |
| Persistence | 3.97     | 1  | 7.11  | 15.73 | .000      |
| P1vP2+P3 x Persistence | 1.14    | 1  | 0.58  | 1.29  | .256      |
| P2vP3 x Persistence | 0.98    | 1  | 0.43  | 0.96  | .329      |
| Residual error | 309     |    | 0.45 |       |           |

| **Academic SC (N = 314)** |         |    |      |       |           |
| Matching T1 Pretest SC facet | 16.22   | 1  | 172.85 | 263.14 | .000      |
| P1vP2+P3 | 0.13     | 1  | 0.01  | 0.02  | .896      |
| P2vP3   | 0.50     | 1  | 0.16  | 0.25  | .621      |
| Persistence | 4.06     | 1  | 10.81 | 16.46 | .000      |
| P1vP2+P3 x Persistence | -1.15   | 1  | 0.87  | 1.33  | .249      |
| P2vP3 x Persistence | 0.89    | 1  | 0.52  | 0.79  | .376      |
| Residual error | 307     |    | 0.66 |       |           |

| **Parent SC (N = 316)** |         |    |      |       |           |
| Matching T1 Pretest SC facet | 23.03   | 1  | 399.47 | 530.31 | .000      |
| P1vP2+P3 | 1.11     | 1  | 0.93  | 1.24  | .266      |
| P2vP3   | -3.17    | 1  | 7.55  | 10.02 | .002      |
| Persistence | 0.87     | 1  | 0.58  | 0.76  | .383      |
| P1vP2+P3 x Persistence | 0.18    | 1  | 0.18  | 0.24  | .626      |
| P2vP3 x Persistence | -0.49   | 1  | 0.02  | 0.03  | .871      |
| Residual error | 309     |    | 0.75 |       |           |

| **Work Value SC (N = 313)** |         |    |      |       |           |
| Matching T1 Pretest SC facet | 15.25   | 1  | 214.02 | 232.49 | .000      |
| P1vP2+P3 | 3.04     | 1  | 8.49  | 9.23  | .003      |
| P2vP3   | 0.73     | 1  | 0.49  | 0.53  | .466      |
| Persistence | 2.04     | 1  | 3.84  | 4.17  | .042      |
| P1vP2+P3 x Persistence | 0.83    | 1  | 0.63  | 0.69  | .407      |
| P2vP3 x Persistence | 0.06    | 1  | 0.00  | 0.00  | .954      |
| Residual error | 306     |    | 0.92 |       |           |
Table 8.13 (continued)

Multivariate Analysis of Variance of Time 1 and Time 2 Self-Concept Facets by Direct and Interaction Effects of Student Program Groups and Persistence Outcomes

<table>
<thead>
<tr>
<th>Source</th>
<th>t-Value</th>
<th>df</th>
<th>MS</th>
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<th>Sig. of F</th>
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<tr>
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<td>.000</td>
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<tr>
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<td>P1vP2+P3 x Persistence</td>
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<td>0.79</td>
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Note. SC=Self-concept, T1=Time 1, P1vP2+P3=Program group 3 and Program group 2 versus Program group 1, P2vP3=Program group 3 versus Program group 2, Persistence=Student outcomes of continuing/withdrawn, df=Degrees of freedom, MS=Mean squares, F=F ratio statistic, Sig. of F=Significance of F statistic. For the contrast P1vP2+P3, higher positive scores mean that P2+P3 is greater than P1, and for P2vP3 positive scores indicate that P3 is greater than P2.

**Effect of persistence on self-concept.** Research Question 9.1 asked to what extent student continuance related to multiple facets of self-concept. Table 8.13 describes that, in regard to TAFE student persistence patterns, self-concept facets proving to have statistically significant and positive outcomes when Time 2 student self-concept measures were contrasted to Time 1, include the non-academic facets of Emotional Stability, General Esteem, Inter-Social, Physical Ability and Appearance, Same and Opposite Sex, Honesty, Work Value and Tertiary Social self-concepts; and the academic facets of Problem Solving, Math, Verbal, Academic and Tertiary Ability self-concepts facets. Only the Parent and Religion self-concept facets proved to have a non-significant relation to the attrition status of the student.

**Effect of program type on self-concept.** Research Question 9.2 enquired to what extent the three types of self-concept enhancement/attrition interventions impacted on facets of self-concept most relevant to the goals of the intervention, and
whether these differences varied as a function of student persistence. Table 8.14 lists the means and standard deviations for each of the 17 self-concept facets for the withdrawn and continuing students of Program groups 1, 2 and 3.

Based on the premise that intervention designs are more likely to be successful if the goals of the intervention target specific self-concept facets relevant to the intervention, the current study aimed to test various strategies to stabilise and improve student self-worth utilising three forms of intervention to improve student retention (see Chapter 6 for further detail of the intervention designs). The first design was applied to all three Program groups. Referred to as the Base Treatment this intervention sought to improve student self-worth levels through a structured program of in-class exercises involving the students’ exploration of their self-concepts. Further enhancement programs were applied to Program groups 2 and 3, where students of Program 2 received the Base Treatment and a Student-Activated program of support for dropout intervention, and Program 3 students were exposed to an Institution-Activated program of support that included participation in team building and student networking and support strategies. As discussed previously, the Base Treatment intervention application (see Hypothesis 7.1) resulted in the three Program groups achieving statistically significant higher retention rates than did the Comparison group (no treatment programs applied). For the present investigation, targeted student self-concept facets for the study were specific to the Institution-Activated Program 3 set of interventions, and included the Emotional Stability, General Esteem and Inter-Social self-concepts.

Table 8.13 demonstrates that the P1vP2+P3 contrast (where participants of Institution-Activated Program 3 and Student-Activated Program 2 are contrasted to students of Base Treatment only Program 1) describes differences in the outcomes between student Time 1 and Time 2 measures for the 17 self-concept facets examined in the study. Statistically significant differences existed in this contrast for the Math, Work Value, Opposite and Same Sex, and Religion self-concepts. The Table also demonstrates that for the P2vP3 contrast (where Time 1 and Time 2 self-concept outcomes were contrasted between the Institution-Activated Program 3 and the Student-Activated Program 2 groups), Institution-Activated Program 3 differed significantly for the Math, Problem Solving, Honesty, Religion, Opposite Sex and Parent self-concepts.
Table 8.14

Mean and Standard Deviations for Time 2 Self-Concepts of Continuing/Withdrawn Students for Program Groups 1, 2 and 3 (N = 324)

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<td>n = 69</td>
<td>n = 50</td>
<td>n = 74</td>
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</table>

Note. N=number of participants, M=mean, SD=standard deviation.
Interaction between program type and persistence. In regard to the differences in self-concept outcomes described above and whether they varied as a function of student persistence, Table 8.13 presents the outcomes of multivariate analysis of variance statistics regarding the P1vP2+P3 contrast (where participants of Institution-Activated Program 3 and Student-Activated Program 2 are contrasted to students of Base Treatment only Program 1) for the 17 self-concept facets and the interaction of these variables with the attrition status resulting for study participants.

Statistical outcomes demonstrate that for the P1vP2+P3 contrast, the targeted self-concept facets of Emotional Stability, General Esteem and Inter-Social self-concepts achieved statistically significant and positive outcomes. Further analysis of the interaction of the P2vP3 contrast (where the Institution-Activated Program 3 is contrasted to Student-Activated Program 2) and the persistence outcomes for TAFE students indicates that again the targeted self-concept facets of Emotional Stability, General Esteem, and Inter-Social self-concepts, together with Math and Physical Appearance self-concept facets, achieved statistically significant results.

Figures 8.1–3 provide a diagrammatic representation in the form of error bars (i.e. the mean for each cell predicted from the MANOVA model and adjusted for the covariate used in the model) for Emotional Stability, General Esteem and Inter-Social self-concept facets described in the latter contrasts. The charts better demonstrate the differences in self-concept and student persistence outcomes between Program groups 1 and 2, and the Institution-Activated Program 3 group.
Figure 8.1. Error Bar chart of adjusted means for Emotional Stability self-concept by Program group and student attrition status.

Figure 8.2. Error Bar chart of adjusted means for General Esteem self-concept by Program group and student attrition status.
Figure 8.3. Error Bar chart of adjusted means for Inter-Social self-concept by Program group and student attrition status

Thus, in response to Research Question 9.2 which inquired to what extent do the different types of self-concept enhancement/attrition interventions impact on facets of self-concept most relevant to the goals of the intervention, and whether these differences vary as a function of student persistence, analyses suggest that exposure of Program 3 participants to the Base Treatment and the Institution-Activated intervention resulted in the goals of those interventions (i.e., to improve or maintain the Emotional Stability, General Esteem and Inter-Social facets of student self-concept) being achieved for continuing students.

Although evidence of reciprocal effects occurring between self-concept facets and other desirable outcomes has been previously established (see Chapter 3), outcomes of Research Question 9.2 suggest that for the current study, a causal predominance in the ordering between persistence and self-concept (i.e. changes in persistence affect student
self-concepts and vice versa) cannot be established and effects therefore are likely to be equably reciprocal.

**Summary of Results: The Impact of Self-Concept Enhancement and Attrition Interventions on Facets of TAFE Student Self-Concept**

In summary, Research Question 9.1 asked to what extent is student continuance related to multiple facets of self-concept Time 1 and Time 2 outcomes for 17 self-concept facets. Students participating in Program groups 1, 2 and 3 were contrasted to determine any differences occurring between the groups regarding these measures. Student-Activated Program 2 achieved statistically significant and positive outcomes over Base Treatment only Program 1 for the Work Value and Same Sex self-concept facets, and Institution-Activated Program 3 achieved statistically significant positive outcomes over Base Treatment only Program 1 and Student-Activated Program 2 for Math, Opposite Sex and Religion self-concepts, and over Student-Activated Program 2 for Honesty, Parent and Problem Solving self-concepts. No other differences in self-concept facets between the three Program groups were identified in the analyses.

Research Question 9.2 enquired to what extent did the three different types of self-concept enhancement/attrition interventions impact on facets of self-concept most relevant to the goals of the intervention, and did these differences vary as a function of student persistence. Time 1 and Time 2 outcomes for 17 self-concept facets of students participating in Program groups 2 and 3 were contrasted to the Base Treatment only Program 1, with the students' attrition status included in the multivariate analysis to determine the interaction effects occurring between the groups. Institution-Activated Program 3 achieved statistically significant and positive outcomes over Base Treatment only Program 1 and Student-Activated Program 2 for Emotional Stability, General Esteem and Inter-Social self-concept facets.

Thus the intervention strategies employed in the current study, designed to improve or maintain targeted self-concept facets of Emotional Stability, General Esteem
and Inter-Social self-concepts for the continuing TAFE student (see Chapter 2) have achieved their objective. Further, although outcomes from the analysis of the interactions of these self-concept facets with the continuing/withdrawn status of the student have therefore provided support for the postulates of the researcher-devised model of non-traditional student attrition in TAFE (see Chapters 2 and 5), the direction of effects however remain undetermined but are likely to be equably reciprocal.

Summary

The current study has demonstrated that student demographic, background and numerous self-rating measures gathered for an extensive range of student circumstances, identified in past literature as potential predictors of attrition behaviour, failed to be recognised as such in this study. This investigation has provided clear evidence that attrition intervention programs for part-time mature-age students that comprise aspects of student self-exploration can achieve substantial increases in retention numbers, providing further support for the principles espoused by recent self-concept research which suggest that targeting of specific self-concept facets may increase the likelihood of successful self-concept intervention outcomes.

Outcomes of Study 2 also suggest that institution-activated initiatives that monitor and intercede in non-persistence behaviour patterns can further increase student retention. Although the quantitative investigation of Study 2 has provided clear indications of the interaction of various self-concept facets and student persistence, there remain a substantial number of questions for which the quantitative data could not provide insight. These issues include: To what extent does a student’s previous course participation, extent of career planning and personal reasons for course enrolment impact on persistence patterns; what differences exist between withdrawn students and continuing students regarding their personal perceptions of individual acumen and study program performance; what is the likelihood that a student will seek assistance regarding a dropout crisis; is the level of course difficulty a major contributor to non-persistence; and to what degree do students rationalise an inability to cope in order to maintain and
protect levels of self-concept? Qualitative methods have been utilised in Study 3 to examine these issues, the results of which are presented in the following Chapter.
CHAPTER 9

STUDY 3 RESULTS: STUDENT SELF REPORTED FACTORS INFLUENCING WITHDRAWAL—A QUALITATIVE ANALYSIS

Introduction

The outcomes of Study 2 presented in the previous chapter aimed to assess the impact of self-concept enhancement and attrition interventions on the retention of part-time, mature-age TAFE students. The primary purpose of Study 3 is to explicate students’ rationales for choosing to persist or withdraw from their course of study utilising qualitative research methods. Participants were selected from the initial participant pool for the quantitative component of Study 2. Twenty seven students who continued in their TAFE course (14 from the experimental Program groups, 7 from the Comparison control group) and 15 students who withdrew from their course (7 experimental, 8 control) undertook a semi-structured interview (see Chapter 6 for an outline of the interview process). The purpose of this chapter is to report the results in relation to the research questions posed for this component of the study (see Chapter 5).

Qualitative Research Methodology

Various researchers (e.g. Cleveland-Innes, 1994; Walleri & Peglow-Hoch, 1988; Kember, 1999; Slark, 1989; Miles & Huberman, 1994) have recommended that a coalescing of quantitative and qualitative methodological approaches often provides the researcher with an opportunity to further explore, clarify and validate many of the issues that are critical to the investigation. However, few research undertakings in attrition have included qualitative methods in their approach, possibly a product of the view of
some attrition researchers (e.g. see Braxton, Brier & Hossier, 1988) that qualitative strategies such as student exit interviews are likely to provide the researcher with nothing more than students’ contrived reasons for withdrawal. Mindful of this admonition, the current study pursues a structured qualitative approach that is based on established principles and practice in qualitative methods. Miles and Huberman (1994) identify the importance of structure in qualitative research methods, with for example, the classification of responses into categories for ease of analysis and reporting, and utilising such outcomes to either support or refute empirically generated results. This approach has also been applied in conjunction with the development of a standard set of instructions and interviewing schedules, and a format for the categorisation and weighting of withdrawn and continuing student responses (see Chapter 6 for an overview of the qualitative approach).

Method

Study 3 was applied after the completion of the quantitative component of this study at Time 2, or in the case of students who withdrew from their study programs, within three weeks following withdrawal.

A total of 42 randomly selected students participated in semi-structured interviews conducted by the writer, representing a 9.1% portion of the research sample who originally participated in the quantitative component of Study 2. Twenty seven students were classified as continuing and were individually interviewed face to face. Another 15 students, classified as withdrawn from their course of study, were interviewed by the writer via telephone.

Outcomes from the qualitative study will be presented according to the Research Questions outlined in Chapter 5. Student comments that were made at the time of the interview procedure will be presented throughout the section to reinforce or clarify the issues discussed.
Results Research Question 1.1: Student Self-Reported Factors Influencing Persistence and Withdrawal

A key objective of the interview procedure was to not only determine what factors influence a student in their decision to withdraw from their program of study, but to also establish if similar themes in the causes of attrition existed between withdrawn students and continuing students who had at some time during the research period considered withdrawing. According to McInnis, James and Hartley (2000), past attrition literature indicate that one third of first year students actually consider withdrawing during the first semester. Further, many second and third year withdrawals follow from events that occur in the first year (Tinto, 1995). By examining theme similarities and differences between the groups, and should the attrition theme outcomes be the same for both samples, the investigation direction would be to identify why continuing students were able to overcome such problems that presented and why withdrawn students could not. Should the major themes be different between the two samples, then it would be necessary to investigate the theme differences and why one set of theme difficulties leads to non-persistence while another set results in the continuation of studies.

Prior to coding student responses, ten major attrition themes were identified based upon the literature and outcomes from Study 2 as potential factors contributing to student withdrawal. The method for this aspect of the study is referred to by Miles and Huberman (1994) as “pattern coding”, a process which allows for the grouping of information into previously established and relevant sets of themes or constructs. The ten themes elucidated (see Chapter 6 for the complete classification of themes) include the categories of work, family and personal issues and academic, logistic and institution related issues.

Each theme identified by participants from each of the three experimental Program groups and Comparison control group was weighted and categorized into one of two classification levels: Primary (i.e. that this particular theme was a major cause in the students’ consideration of, or actual decision to withdraw) or Secondary (i.e. that the identified theme played some role in the students’ consideration of, or actual decision to
withdraw). Following the categorization and weighting of the theme, participants’ comments were then recorded to clarify, reinforce or refute aspects of the theme selection.

Without any initial prompting from the interviewer of possibilities, withdrawn students were asked to provide the reason(s) for their actual withdrawal, while the continuing students were asked to describe the reason(s) they may have contemplated when considering to withdraw from their course of study. For most students, only one or two issues were presented as major determinants in their decision or consideration to withdraw from studies. However, interviewees were then encouraged to consider all aspects of the listed themes, and as a result, it was most often the case that as each issue was presented the student recalled the pressure of that particular theme and talked of its impact. Most often, subtle prompting by the interviewer to have participants contemplate additional issues beyond their first response and to consider other possibilities generally resulted in the student identifying one or more other major Primary or Secondary themes in their decision to withdraw.

**Results: Withdrawn Students**

Table 9.1 identifies the selection of Primary and Secondary themes nominated by withdrawn participants from each of the 3 experimental interventions and the control group intervention separately. Non-persisting participants ($N = 15$) selected a total of 23 Primary themes and 40 Secondary themes, with an overall mean selection rate of 4.2 themes (a mean Primary selection of 1.5 themes) per student. Primary themes identified by withdrawn students included Work Related (e.g. changed jobs), Preferences (e.g. course does not meet the student’s expectations), Family (e.g. relationship problems) and Communication issues (e.g. language difficulties). Work and Family issues also rated highly in Secondary themes for the withdrawn participants, with the far greater majority of responses being weighted at the level of “Difficult but Not Insurmountable”.

251
Table 9.1

Selection of Primary and Secondary Attrition Themes by Non-Persisting Students

<table>
<thead>
<tr>
<th>THEME</th>
<th>PRIMARY (Insurmountable)</th>
<th>SECONDARY</th>
<th>SECONDARY THEME WEIGHTINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work Related</td>
<td>5</td>
<td>6</td>
<td>Minor Influence = 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Not Insurmountable = 5</td>
</tr>
<tr>
<td>Interest or Preference</td>
<td>4</td>
<td>3</td>
<td>Minor Influence = 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Not Insurmountable = 1</td>
</tr>
<tr>
<td>Logistic Demands</td>
<td>2</td>
<td>4</td>
<td>Minor Influence = 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Not Insurmountable = 3</td>
</tr>
<tr>
<td>Academic Demands</td>
<td>0</td>
<td>8</td>
<td>Minor Influence = 6</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Not Insurmountable = 2</td>
</tr>
<tr>
<td>Institutional Facilities</td>
<td>0</td>
<td>0</td>
<td>Minor Influence = 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Not Insurmountable = 0</td>
</tr>
<tr>
<td>Institution Staff</td>
<td>0</td>
<td>2</td>
<td>Minor Influence = 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Not Insurmountable = 2</td>
</tr>
<tr>
<td>Student Issues</td>
<td>1</td>
<td>4</td>
<td>Minor Influence = 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Not Insurmountable = 2</td>
</tr>
<tr>
<td>Family Issues</td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Not Insurmountable = 8</td>
</tr>
<tr>
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<td>2</td>
<td>2</td>
<td>Minor Influence = 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Not Insurmountable = 0</td>
</tr>
<tr>
<td>Communication</td>
<td>4</td>
<td>1</td>
<td>Minor Influence = 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Not Insurmountable = 0</td>
</tr>
</tbody>
</table>

Note. The number appearing in each of the Primary and Secondary cells represent the number of nominations made for that particular theme by non-persisting participants. Student weightings of Secondary attrition themes ranged from Minor Influence to Very Difficult but Not Insurmountable. The descriptor of Insurmountable resulted in the nomination becoming a Primary theme selection.

Table 9.1 also indicates that although Academic issues were a prevalent selection of the withdrawn participants, this particular theme only achieved a Secondary nomination
with the greater majority (75%) of participants weighting the issue as a Minor Influence in their decision to withdraw from their program of study. When asked to extrapolate on the selection, not one of the participants admitted possible academic inadequacies but tended to link the potential for academic problems to other external themes. The following comments typify participants’ reasoning for the Secondary and minor classification:

It (the course material) didn’t look that tough to me, but I could tell that it would eventually get in the way of my work (Terry, Program 3).

I hate exams ‘cause I’ve never done ‘em very well. I wanted something more hands-on than that—something useful in the real world (Tia, Program 1).

**Results: Continuing Students**

Table 9.2 lists the classification of Primary and Secondary themes identified by students from the continuing sample group as potential influences at a time when they had considered withdrawing. As the table indicates, continuing students \( N = 27 \) selected a total of 20 Primary themes and 41 Secondary themes, with an overall mean selection rate of 2.6 themes (a mean Primary selection of 0.7 themes) per student.

Major themes identified in Table 9.2 by the continuing cohorts as potential Primary causes for withdrawing include Academic Demands (e.g. course material too difficult), Institutional Facilities (e.g. inadequacies of college student support facilities), and Personal issues (e.g. student interaction inadequacies). Academic, Institutional Facilities and Personal issues also rated highly in Secondary themes for the continuing students with the far greater majority of responses for Academic Demands being weighted at the level of Difficult but Not Insurmountable, and evenly proportioned between the two Secondary category weightings for Institutional Facilities and Personal issues.
<table>
<thead>
<tr>
<th>THEME</th>
<th>PRIMARY</th>
<th>SECONDARY</th>
<th>SECONDARY THEME WEIGHTINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work Related</td>
<td>1</td>
<td>4</td>
<td>Minor Influence = 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Not Insurmountable = 4</td>
</tr>
<tr>
<td>Interest or Preference</td>
<td>0</td>
<td>2</td>
<td>Minor Influence = 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Not Insurmountable = 0</td>
</tr>
<tr>
<td>Logistic Demands</td>
<td>0</td>
<td>2</td>
<td>Minor Influence = 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Not Insurmountable = 1</td>
</tr>
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<td>Academic Demands</td>
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<td>11</td>
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</tr>
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<td></td>
<td></td>
<td>Not Insurmountable = 9</td>
</tr>
<tr>
<td>Institutional Facilities</td>
<td>4</td>
<td>7</td>
<td>Minor Influence = 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Not Insurmountable = 4</td>
</tr>
<tr>
<td>Institutional Staff</td>
<td>0</td>
<td>0</td>
<td>Minor Influence = 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Not Insurmountable = 0</td>
</tr>
<tr>
<td>Student Issues</td>
<td>0</td>
<td>2</td>
<td>Minor Influence = 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Not Insurmountable = 2</td>
</tr>
<tr>
<td>Family Issues</td>
<td>1</td>
<td>4</td>
<td>Minor Influence = 4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Not Insurmountable = 0</td>
</tr>
<tr>
<td>Personal Issues</td>
<td>8</td>
<td>8</td>
<td>Minor Influence = 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Not Insurmountable = 5</td>
</tr>
<tr>
<td>Communication</td>
<td>0</td>
<td>3</td>
<td>Minor Influence = 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Not Insurmountable = 2</td>
</tr>
</tbody>
</table>

*Note.* The number appearing in each of the Primary and Secondary cells represent the number of nominations made for that particular theme by continuing students. Student weightings of Secondary attrition themes ranged from Minor Influence to Difficult but Not Insurmountable.

Academic Demands proved to be the most significant selection by continuing participants, and the reasoning for this focus can be identified in the following representative statements of the group:
When I first looked at the assignments and tests to be done I just about packed up my stuff to leave there and then (Carla, Program 2).

(Teacher’s name) did the intro to the class and all of it went over my head. I thought my days were already numbered then (Trish, Program 3).

Apart from Academic Demands, Personal Issues were the most prevalent selection by continuing students for both the Primary and Secondary theme classifications. Students were asked to expand on this selection with most identifying feelings of inadequacy in personal interactions, and a lack of confidence regarding their place within the educational environment. The following statements are representative of student sentiment for this group:

I was like a fish out of water—all those memories of school started flooding back, and let me tell ya—there was not a fond one amongst them. Despite more than 20 years away from it, I immediately reverted back to feeling like a dumb-dumb (Karl, Program 2).

I like to keep to myself—I feel safe that way. The first thing I worked out was that you couldn’t do that in this course. Competing personalities—I hated the idea of it (Mo, Program 1).

**Overview of Results: Student Self-Reported Factors Influencing Persistence and Withdrawal**

Research Question 1.1 had as its major focus the determining of factors that influence a student in their decision to withdraw from their program of study. In response to this Research Question, it was further posited that an examination of theme similarities and differences between withdrawn participants and continuing students who had at some time considered dropping out might provide an effective basis from which
to draw conclusions. As stated previously, if themes between the groups were similar, then the focus would be to determine why continuing students were able to overcome such problems that presented and why withdrawn students could not. Should the themes be different between the two samples, then it would be necessary to investigate the theme differences and why one set of theme difficulties leads to non-persistence while another set results in the continuation of studies.

The results point to distinct differences in attrition themes between withdrawn and continuing participants. Non-persisters primarily identified external forces (e.g. Work and Family Demands) as their principal reasons for withdrawal, while continuing students nominated internally generated issues (e.g. Academic and Personal inadequacies) as the principle threat to persistence in their studies. Cullen (1994) suggests that students may offer “last straw” reasons for dropping out, but these may in fact be contrived and the least threatening to reveal. Interestingly, withdrawn participants did eventually acknowledge the possibility of academic and other personal inadequacies as playing a role in their decision to withdrawn from their program of study, however, respondents only rated these particular themes as Secondary and generally only as minor influences. Personal reflections in the form of statements from non-persisters were in conflict with initial theme ratings and did not typically support a position that identified external forces as the most salient contributing factor to their withdrawal. This result further supports the suggestion by Braxton, Brier and Hossier (1988, p. 251) who suggest that the reasons offered by students for withdrawing may be in fact be nothing more than “socially acceptable rationalisations”.

**Research Question 2.1: Personal Perceptions of Individual Acumen, Performance and Likelihood to Seek Assistance During Withdrawal Crisis**

Research Question 2.1 was designed to investigate the rationale of interviewees regarding their perceptions of academic ability and performance, specifically in reference to a time when they had either withdrawn for the non-persisters, or had thoughts of withdrawing for the continuing students. The researcher suggests that
student perceptions at this time are incontrovertibly linked to avoidance of assistance seeking behaviour, an important issue to attrition interventions and an integral aspect to this study.

Question 10 of the Interview Schedule required students to recall their participation and expectations of performance in the Adult Student Acumen Test (AdultSAT; see Chapters 3 and 6 for further details of instrument design and validation) undertaken at the beginning of the major research period, the results of which were identified at interview. Students were also asked to describe their “expectations of course performance” for those who were continuing, and for withdrawn participants had they continued in their program of study. Question 5 examined student perceptions relating to course withdrawal for non-persisters, and descriptions by continuing students who had considered withdrawing at some point during the research period.

Further, the researcher attempted to identify if withdrawn or continuing students had either sought the assistance of college staff regarding their considerations to withdraw, or thought that the college could have provided support in some way during this particular time. Of the 42 participants in this qualitative study, not one respondent considered discussing their situation with teachers or other college staff, nor did they believe that the college could do anything to assist them during this time. However, there were differences in perceptions between withdrawn and continuing students and these are described in the following sections.

**Results: Withdrawn Students**

The vast majority of students from the withdrawn sample (94%) noted positive surprise at their better than expected scores achieved in the AdultSAT. When non-persisters were asked how they thought they might have performed if they had continued in their program of study, participants without exception (100%) indicated that they believed they would have successfully completed the program. The following statements illuminate the sentiment of the sample members:
It’s not that I don’t have the smarts, man; I could do it if I really wanted to—and do it very well (Tony, Program 1).

I know I can do anything I put my mind to — it’s just not what I’m after at the moment (Peta, Program 2).

I can get the credentials later—when it suits me (Alan T, Program 3).

When asked the question, “How do you feel about not having completed the course?” withdrawn student responses indicated some surprising perceptions among the group. Responses were scaled from “No Feelings” regarding non-completion, to a weighting of their positive or negative connotation for “Some Feelings” to “Intense Feelings”. Seventy eight percent of withdrawn participants suggested that they had “Intense Negative Feelings” regarding their dropping out, and although their comments would initially accord the responsibility of their withdrawal to external influences (e.g. work and family demands), students inevitably sighted internal forces as also being partly responsible. The following statements highlight the ambiguity (i.e. holding external or internal forces as responsible for their withdrawal) in rationales held by non-persisters:

Not finishing isn’t good at all, but I have a husband and family who want me at home… I only took up studies so I could help him in his business, but I had no idea the course was going to be that hard (Colleen, Control).

Fitting study in with work wasn’t as easy as I’d hoped. Work comes first… I could see that some of the material needed a lot of time taking in—at least for me anyway (Josh, Program 2).
Some teachers really need to get their act together and understand that there's life outside TAFE. I left in protest really... The technical stuff might be easy for them but it's not for us (Alan T, Program 3).

In regard to the seeking of assistance at a time when the student had or was considering dropping out, 79% of the withdrawn students believed that the college would have little to contribute in helping students with their problems. The following statements represent the general feeling held within the group:

They're only there to teach—not baby sit the “try hards”. C'mon, they're only interested in the survivors aren't they (Ian, Control).

Just who do you ask anyway—you don’t know anybody but the teacher and there’s nobody else around to speak to (Josh, Program 2).

Nobody could have helped me with my problems. It’d only be lip service even if they did offer to help, wouldn’t it (Tony, Control).

Results: Continuing Students

Continuing students did not show the same degree of confidence regarding positive outcomes in their results for the AdultSAT, with 52% of participants indicating that the result met their expectations and 33% suggesting that they were positively surprised at achieving higher than expected scores in the pre-course test. In regard to the question of how they might rate their performance in their program of study, similar percentages were achieved with 56% of continuing cohorts indicating that their course performance would be “Okay” and 37% believing that they might do “Very Well”. However, a higher percentage of continuing students (78%) indicated they would be “Positively Surprised” at achieving better course module results beyond their expectations, while only 11% of students suggested their performance would actually meet their expectations.
In regard to the question, "Has your level of confidence about completing the course changed from what you believed at the commencement of the course?" continuing student statements were weighted as "Less Likely to Finish" to "No Change" to "More Likely to Finish" their course of study. Eighty five percent (85%) of continuing students indicated a significant rise in their levels of confidence, believing that they were now "More Likely to Finish" their study programs, with not one student from the sample believing that they were "Less likely to Finish".

Continuing students generally believed that seeking out assistance from college staff would not have improved their chances of persistence. Seventy percent (70%) of the group identified the passage of time and perseverance as reasons for their continuing in their studies. The following statements typify continuing student perceptions in this regard:

You need to do these things on your own if you’re going to accomplish anything—it’s the same for every aspect of life isn’t it (Carla, Program 2).

The teachers tell ya it gets easier and it does. It just takes time to settle into things—especially when you’ve been away from it for so long (Phil, Control).

It’s like anything else, isn’t it—you just gotta persevere. (Lyn, Program 2)

*Overview of Results: Personal Perceptions of Individual Acumen, Performance and Likelihood to Seek Assistance During Withdrawal Crisis*

Statements from participants indicate that for the continuing student, levels of confidence regarding AdultSAT outcomes and their capacity to cope with course material were distinctly lower than the confidence levels indicated by withdrawn participants regarding their performance and attitude to course completion. Such perceptions, although clearly unrealistic according to the attrition outcomes, suggest an attempt by the withdrawn student to protect their self-concepts from the consequences of
what would otherwise be perceived as academic failing. Continuing students felt far more confident about finishing their program of study at the time of interviewing than they had prior to the end of the research period. This suggests that for continuing students, a “success breeds success” attitude had developed following some recognition of their capacity to cope with course material.

One of the most powerful insights to come from this aspect of the study is that the withdrawn student appears to rationalise the responsibility for their academic failure to at least one external factor, but will inevitably identify one or more internal forces as a Secondary contributing factor to their dropping out of their program of study. This circumstance has previously been identified by Johnes (1990), who reported that non-persisters felt guilty and ashamed of dropping out, and that while in some cases these feelings were replaced by a sense of relief when the decision to drop out later proved to have been the correct one, in other cases the feelings of shame and guilt changed to depression and lack of self-esteem. Helen, a withdrawn participant in the study, provides a statement that is not only typical of the respondents’ need to attach responsibility for non-persistence to external forces and then allow for the possibility of their personal contribution to the failure, but also highlights the emotional consequences of the withdrawal behaviour for non-persisters.

In one way I’m relieved [to have dropped out]; getting to class on time wasn’t easy... In another way I’m really disappointed in myself. It’s a missed opportunity that’s all my own doing really—possibly one of those things I’ll continue to regret for the rest of my life (Helen, Program 1).

Distinct differences between continuing and withdrawn students were apparent regarding their perceptions in seeking assistance. Withdrawn students believed that institutionally managed assistance would be inadequate or of false piety, while continuing student statements suggest that perseverance in applying oneself is a much preferred option to getting help.
However, further analysis of these outcomes show a more powerful undercurrent for all students of the sample regardless of their attrition status. It is clear that students avoid seeking assistance with their problems at a crisis point where they have or are considering withdrawing, and although variations in reasoning are offered for such avoidance, seeking assistance and then to still fail, serves only to accentuate the failure, a consequence which is implicitly related to the potential for an increased negative self-concept.

Carol, a continuing student (Program 3), provides some insight of how the seeking of assistance by students may be related to the protection of an already vulnerable self-concept:

It's bad enough that you fail from your own doing, but to get help and then fail anyway would be so much worse and so much harder to live with (Carol, Program 3).

**Results Research Question 3.1: The Impact of Students' Previous Course Participation, Career Planning and Personal Reasons for Course Enrolment on Persistence Patterns**

Research Question 3.1 examined the implications of students' previous course and work experience, educational planning and personal motivation in undertaking their program of study and the role these factors might play in persistence patterns.

**Results: Withdrawn Students**

Thirteen percent (13%) of withdrawn students indicated that they had previously enrolled in a course of study, but not one of the withdrawn participants had finalised any of their previous studies.
In response to Question 2 of the Student Interview Schedule that inquired of the extent of career planning undertaken by the student, again not one of the participants from the withdrawn group had constructed a career plan. Interestingly, although 100% of the Withdrawn cohort indicated that they had not enrolled in a course of study since having dropped out, the entire group intimated that they intended to return to a program of study in the future, but had either not made a decision in this regard or had nothing specific in mind at the time of the interview procedure. Most participants of the withdrawn group did not perceive their failure to persist in their current course as a permanent set back, but believed the right set of circumstances would eventually result in their educational success. However, career planning was again not considered a necessary step toward this success. For example, Tony (Program 2) stated his educational success would be dependent on it being the right time, suggesting “It’ll happen when everything is right”; Colleen (Control) indicated course completion would be a matter of her finding the right occupational direction, “I know I’m good for something—just not sure what at the moment”; and Alan T (Program 3) believed educational success was dependent on him having a first positive experience of completion, “You only have to finish one course and I’m sure it’ll snow ball from there.”

Forty seven percent (47%) of withdrawn participants indicated improved employment prospects or a similar pursuit as their primary motivation for starting the current program of study. However, the remainder of the withdrawn cohort (53%) demonstrated substantial imprecision regarding the over-arching goals of their education. The following statements serve as examples for the group:

It just seemed like I should do something (Peta, Program 2).

This course was as good as any (Pat, Control).

I was kinda looking around for work I might like to do (Alan R, Control).
**Results: Continuing Students**

A total of 19% of continuing students indicated that they had previously enrolled in a short course of study. Two students (7%) from the continuing cohort had completed their previous course.

Like the withdrawn participants, not one of the continuing students indicated that they had devised a career plan before undertaking their current program of study. However, 93% of the respondents of the continuing sample indicated that what had prompted them to begin a program of study was to achieve a better life for themselves by increasing their employment prospects. The following statements from participants reflect the general sentiment of the continuing group:

As you get older, it is easy to see that education improves one’s quality of life (Mehmet, Program 3).

It was time to do something with my life and training was the first place to start (Lyn, Program 2).

I needed to get some quals to get ahead at work (Phil, Control).

I wanted to get myself a career—you know, become a professional (Karl, Program 2).

**Overview of Results: The Impact of Students’ Previous Course Participation, Career Planning and Personal Reasons for Course Enrolment on Persistence Patterns**

Results for Research Question 3.1 indicate that persistence patterns between continuing and withdrawn students were not impacted by student experiences from previous enrolment in training programs. However, there were distinct differences between the two groups in that, while they did not differ in relation to the absence of
developed career plans, the vast majority of continuing students (93%) did in fact express a specific rationale for initially choosing to undertake further education, when more than half of the withdrawn cohorts (53%) did not.

**Research Question 4.1: The Relation of Course Difficulty to Non-Persistence and Students’ Rationalisations in Order to Maintain and Protect Levels of Self-Concept**

Research Question 4.1 reports the outcomes of two major questions comprised in the Student Interview Schedule (see Appendices H.1–2). Question 4 of the Interview Schedule invited participants to describe their perceptions regarding the level of difficulty of the course in which they were enrolled. Students were asked to use a descriptive scale that spanned from “Easy” to “Challenging” to “Far too difficult”. Question 9 was designed to examine any differences between continuing and withdrawn student explanations of course progress or failure to inquiring interested parties.

**Results: Withdrawn Students**

Interestingly, the majority of participants from the withdrawn cohort (80%) indicated a level of course difficulty that ranged from being “Easy” (32%) to “Challenging” (48%), and only 20% of non-persisters indicated that they found their study program “Far too Difficult”. The following comments demonstrate the attitude of the majority of non-persisters regarding the level of course difficulty:

- It’s not hard—simply a matter of applying yourself (Jack, Program 2).
- It didn’t seem too bad before I left—more than manageable (Ian, Control).
- I found the course dull as hell—the rest of it was easy (Ann, Control).

In response to Question 9, “What do you generally tell people if they ask how your studies are going?” interviewees of the withdrawal sample unanimously stated that
they had a prepared response for inquirers of their progress in their studies. In the far majority of cases (87%), non-persisters indicated their prepared responses were related to causes outside of their control, such as work related demands, the course of study not meeting their occupational needs, or family demands. The following are typical of statements students’ had prepared for inquirers:

I tell ‘em, “it had nothing to do with what I was after so I left” (Terry, Control).

“Work’s too busy at the moment and one of them had to go”, does the trick (Colleen, Control).

Just that I’ve got better things to do with my time, like making money instead of paying it out in fees (Alan T, Program 3).

Thirty four percent (34%) of the withdrawn group indicated that their replies were constructed for the purposes of brevity, and when pressed to explain why such responses were given, together with another six non-persisting students (73%) suggested that statements such as these were more readily acceptable to friends and family and required less in the way of explanation.

**Results: Continuing Students**

The majority of continuing students (70%) indicated that they found the level of difficulty for their program of study to be either Challenging (23%) or Far too difficult (47%). The following statements are representative of the entire continuing sample:

I can tell you I had a real time of it—lots of theories and jargon to deal with (Glen, Control).

I had to read the text books over and over again before any of it made sense to me (Carla, Program 2).
In response to the question of what information is reported to interested parties regarding the student’s course progress, admitting personal inadequacies were far more prevalent among the continuing students (81%) than the withdrawn cohort. The following statements by continuing students reflect the sentiment for the larger portion of this group:

I just say I have no idea what they’re talking about most of the time but I am getting by (Mo, Program 1).

“It was all beyond me for a time”; they seem to understand and accept that (Carol, Program 3).

The truth—I didn’t understand a word for the first couple of weeks (Jenny, Program 3).

Overview of Results: The Relation of Course Difficulty to Non-Persistence and Students’ Rationalisations in Order to Maintain and Protect Levels of Self-Concept

Differences existed between continuing and withdrawn students regarding their perceptions of the level of difficulty of their study programs, where continuing students reported substantially higher ratings of difficulty than did non-persisters. Further, even greater differences existed between the two groups regarding their reports to interested parties of their course progress. The far greater majority of continuing students described their progress with some accuracy, describing their difficulties with course material and the need for perseverance. In contrast, non-persisters favoured the use of more socially accepted explanations for their withdrawal for the sake of brevity. Again, these outcomes support the notion of a process of self-concept protection, where non-persisters may employ coping strategies in an attempt to maintain self-concepts.
Summary

Outcomes from this qualitative study have disclosed major attitudinal differences between continuing and withdrawn students. A recurring theme throughout this investigation has been that issues of difficulty for continuing students focused on their academically based struggle with course material and assessments, while the withdrawn participants suggested generalised and socially accepted sentiments that tend to lay the responsibility of failure to forces outside themselves. When asked of their reasons for considering or actually having withdrawn from their programs of study, withdrawn participants identified both Primary and Secondary causes that were essentially beyond their control. Continuing students on the other hand suggested more internally generated themes such as their doubts of academic ability, their fear of alienation and isolation, and feelings of low self-esteem.

Despite the fact that the answer to the question of why some students persist and others do not is still not clear, outcomes from this chapter have identified a circumstance that may provide some insight—that self-concept maintenance is a crucial function of the continuing and withdrawn mature-age student’s participation in part-time studies. Further, the results demonstrate that student attempts at maintaining self-concepts largely negate the use of attrition interventions through self-imposed avoidance behaviour. Although a myriad of reasons are offered by students regarding this avoidance, a more plausible explanation may be that for a student to seek out assistance and then to fail anyway serves only to accentuate the failure; a consequence which appears related to the potential for an increased negative self-concept and a circumstance that students strive to avoid above all else.

A number of issues critical to student persistence behaviour have been identified in this qualitative study. These together with those outcomes achieved in the empirical based Study 2 investigation will be further examined for their implications for research in the following Chapter.
CHAPTER 10
DISCUSSION AND IMPLICATIONS FOR FURTHER RESEARCH AND EDUCATIONAL PRACTICE

Introduction

This thesis comprised three major studies. Study 1 was concerned with testing the psychometric properties of the Self Descriptive Questionnaire Version III (SDQ III) in order to identify a psychometrically sound, multidimensional self-concept measurement instrument for use with a specialised population of mature-age TAFE students undertaking part-time studies, and examining the psychometric properties of four new self-concept sub-scales developed specifically for this population. Study 2 was designed to (a) test the influence of factors expounded in the literature for their impact on TAFE students’ continuing in their studies, (b) determine to what extent participants who had experienced an intervention and who choose to persist in TAFE studies displayed higher self-concept facets compared to students who had experienced an intervention and who choose to withdraw from TAFE studies, (c) elucidate the impact of attrition intervention designs that are internally activated by the student or externally managed by the institution on TAFE students’ persistence in continuing their studies. Finally, Study 3 utilised qualitative methodology to examine students’ rationales for choosing to persist or withdraw from their studies.

The purpose of this chapter is to discuss the key findings of each study in relation to these main objectives and previous knowledge and research. The significance of the outcomes of the present investigation are grounded with discussion of the strengths and
weaknesses of the research undertaking, with the implications for future research, theory and educational practice presented for consideration.

**Study 1: Discussion of Findings**

Studies investigating the role of self-concept in student attrition have almost exclusively employed a single or global measure of the construct. This unidimensional approach to self-concept measurement has been challenged for its psychometric value (see Marsh & Hattie, 1996; Marsh, Craven & Martin, 1993), and outcomes derived from the method have been described by a number of researchers as not only dubious, but possibly responsible for "the contradictory findings which abound in self-concept research" (Marsh, 1988, p. 40). Unidimensional limitations have been further compounded by a determined use by researchers of the single self-concept measure for between-construct studies, whereby self-concept was related to other variables prior to addressing within-construct issues, resulting in a compounding risk of error for interpretation (Craven et al., 2003).

Harter (1990) suggests that a general self-concept score masks important distinctions that individuals make about their adequacy in different domains of their lives. Marsh and Shavelson (1985) cautioned that the danger inherent in the unidimensional model is that the single pieces of the self-concept puzzle would be either missing or remain unidentified, and could therefore not be interpreted or recognised. Marsh and Holmes (1990) further contended that poor measurement of self-concept had persisted as the weakest link connecting theory, empirical research and practice in self-concept research, and that researchers applying a unidimensional measure appeared to be an attempt to include the single score in analyses in the hope that something significant would be identified (Marsh & Craven, 1997).

Study 1 therefore aimed to capitalise on recent advances in self-concept theory and research in order to (a) test the psychometric properties of the SDQ III in order to identify a psychometrically sound, multidimensional self-concept measurement instrument for use
with a specialised population of part-time mature-age TAFE students, (b) develop new psychometrically sound self-concept scales of salience for part-time mature-age TAFE students, (c) test the psychometric properties of a shortened version of the SDQ III and newly developed purpose-designed self-concept scales for part-time mature-age TAFE students, (d) compare and contrast the nature and structure of self-concept for part-time mature-age TAFE students in comparison to results for other adolescent groups, (e) compare and contrast the extent of congruence and dissonance between self and significant others' ratings of multiple dimensions of self-concept, and (f) elucidate the relations between SDQ III self-concept scales and newly developed self-concept scales of relevance to TAFE students.

The following discussion outlines the findings of the current study regarding these objectives, and discusses their significance for theory, research and practice. In this section, findings and plausible interpretations are explored, and the significance of the findings for theory, research and practice are discussed.

*Psychometric Properties of the SDQIII-A for Mature-Age Students in Higher Education*

A pivotal outcome in the current study was the establishment of clear support for the use of the SDQIII-A with mature-age students to measure their multifaceted self-concept. Demonstration of the sound psychometric properties of the SDQIII-A also ensures that researchers can confidently utilise this instrument to advance research with adult students. Although other self-concept instruments exist for application in the workplace (e.g. Crowder and Michael, 1989) and in the clinical setting (e.g. Messer and Harter, 1986), this study makes an important contribution in the higher education environment with the development of an appropriate measurement instrument of self-concept for mature-age students. Higher education researchers now have the ability to appropriately evaluate theoretical predictions and inform practice. Theory, measurement, research and practice are inexorably intertwined such that failure in one area will undermine the others—as seen to be evident from the poor quality of self-concept
measurement in attrition research. Without suitable instruments, there is little basis for quality research to test and refine theory and to inform practice. Now that a suitable self-concept measurement tool has been identified for adult students of all ages, it is envisaged that self-concept theory, research and practice particularly in the field of attrition investigations can be strengthened.

Results of the present investigation provided stronger support for the construct validity of self-concept responses than those produced by other self-concept instruments administered to adults (e.g. Messer & Harter, 1986; Crowder & Michael, 1989). This success may be attributed to the unique features of the SDQIII-A. The extended version of the instrument developed specifically for the current study indicates a more appropriate representation of the self-concept constructs of mature-age students who are generally working while undertaking part-time study. The procedure for conducting the modifications to the SDQ instrument followed the psychometric guidelines of short form construction (see Chapter 3) developed by Smith, McCarthy and Anderson (2000), and the further recommendations generated by Marsh, Ellis, Parada and Richards (in press). The short version of the SDQIII-A therefore provides the researcher the opportunity for quicker application without any significant loss to the psychometric integrity of the instrument.

Reliability of the SDQIII-A. Outcomes of Model 1 provide clear evidence that the coefficient alpha estimates of reliability for the thirteen original subscales of the SDQ III identified in this study (mean alpha of 0.87) are similar to those reported in the normative data for the SDQ III (mean alpha of 0.88; Marsh, 1992), and that the four new subscale outcomes are comparable in terms of achieving solid internal consistency outcomes (mean alpha of 0.82). For the seventeen SDQIII-A self-concept scales taken together, a mean alpha of 0.87 was achieved. Overall, the internal consistency estimates were solid, with five of the original thirteen SDQ III scales examined in this study (i.e. Physical Appearance, Honesty, General, Problem Solving, and Academic self-concepts) achieving higher reliability coefficients than the same scales in the normative data.
Multidimensionality of self-concept. The factor structure achieved in the current study has implications for our understanding of the structure of self-concept as well as the measurement of the self-concept of mature-age students. The confirmatory factor analysis based on the 17-factor model clearly identified all seventeen factors that the SDQIII-A was designed to measure (see Chapter 7). A total of 178 items (89 item pairs) comprising the seventeen subscales of the extended SDQ III produced 17 a priori self-concept facets. By including the thirteen original and four new SDQIII-A self-concept scales in the one CFA equation, average factor loadings for each of the seventeen self-concept factors are likely to achieve lower factor coefficients than an analysis that considers the original and new facets separately. Average factor loadings range from 0.88 to 0.64 for twelve of the original thirteen SDQ III subscales, with the Honesty self-concept factor achieving a more modest factor loading of 0.55. For the four newly devised scales, average factor loading coefficients ranged from 0.68 to 0.59. The mean factor coefficient for the original thirteen SDQ III factors was 0.75 (SD = 0.07), and for the new four supplemented factors a mean factor coefficient of 0.64 (SD = 0.09) was achieved. The overall mean factor coefficient for the entire seventeen factors was 0.72 (SD = 0.07), with item-pair coefficients ranging from 0.93 (Religion self-concept item pair 3) and 0.47 (Tertiary Social self-concept item pair 4). Chi square, TLI and RNI outcomes demonstrate that the seventeen factor model is a good fit to the data, and the RMSEA result suggests the model to be a reasonable fit.

Psychometric Properties of the Modified Short Form Version of the SDQIII-A

Despite the reduction of 178 items comprising the seventeen factors of the extended SDQIII-A to a total of 102 items, relatively strong and consistent total factor values were again maintained for Model 2. The seventeen factor scales of the short modified SDQIII-A indicated strong internal-consistency reliability estimates for each factor, achieving a mean alpha of .82 for the 17 subscales. A mean alpha of .83 with an alpha range of .94 to .64 was achieved for the thirteen original SDQ III subscales, and a mean alpha of .79 with an alpha range of .84 to .72 for the four new shortened scales. Again, chi square, TLI and RNI outcomes describe the seventeen factor model as a good fit.
to the data and the RMSEA result suggests the model to be a reasonable fit. The outcomes of the analyses provide support for the shortened modified version of the SDQIII-A for quicker application with sustainable psychometric integrity which is comparable to that of the outcomes identified for the extended version of the instrument.

Outcomes also identified that in the main, similar relations between the thirteen original SDQ III subscales exist for a mature-aged student population as it does for the older adolescent and young adult population for which the instrument was originally designed. For example, the Academic self-concept subscale correlated with the academic type scales (correlation mean = 0.48), but achieved low mean correlations with the eight non-academic subscales of the SDQ III (mean correlation = 0.21). Similarly, low mean correlations also resulted for the eight non-academic subscales and the remaining academic subscales (Verbal self-concept = 0.23; Math self-concept = 0.17; and Problem Solving self-concept = 0.26), with an overall academic to non-academic subscales correlation mean of 0.22.

**Self-other agreement.** Models 3 and 4 examined the relationship between SDQIII-A self-ratings and significant other ratings of student self-concept for the long (Model 3) and short (Model 4) versions of the SDQIII-A. Results of the analyses again reflected outcomes consistent with those previously achieved for an adolescent student population (Marsh, 1992). The short form version of the SDQIII-A performed substantially better than the long form version, with Model 4 producing factor correlation coefficients ranging from 0.77 (Religion self-concept) to a modest 0.33 (Problem Solving self-concept) for the original 13 SDQ III factors, and from 0.81 (Work Value self-concept) to 0.43 (Tertiary Social SC) for the four new scales. A mean factor correlation coefficient of 0.59 ($SD = 0.14$) was achieved for the eleven non-academic scales, and 0.62 ($SD = 0.13$) for the five academic scales. An overall mean factor correlation of 0.57 ($SD = 0.15$) was produced for the entire 17 factors of the shortened modified version of the SDQ III. Again, chi square (8616.1, $df = 4913$), TLI (0.923) and RNI (0.933) outcomes demonstrate that the 17-factor model was a good fit to the data,
however, the RMSEA (0.052) result suggests the model to be just outside of the range for a close fit.

Multitrait-multimethod outcomes indicated that the self-other factor correlations resulting from the application of the short version (102 items) of the SDQIII-A performed substantially better than the long version of the instrument, and demonstrated that the convergent validities were significant for all 17 factors of the instrument (mean \( r = .59 \)). Tests of heterotrait-heteromethod (HTHM) and heterotrait-monomethod (HTMM) correlation comparisons indicated that for each of the 544 possible HTHM comparisons (between a convergent validity and another correlation in the same row or column of the square block coefficients), the validity was higher; and for 516 of the 544 (95%) possible HTMM comparisons (between a convergent validity coefficient and other correlations in the same row or column of the two triangular blocks), the validity coefficient was higher. Sixty four percent of the validity coefficients that rated higher than the convergent validity in Model 4 occurred between the correlations comparisons of the 13 original SDQ III subscales. Analyses described above suggest results of Model 4 outcomes are comparable to those outcomes achieved in previous self-concept studies that investigate self-other agreement (e.g. see Marsh, 1992), providing strong support for the convergent and discriminant validity of the short form version of the SDQIII-A.

Thus, despite a significant reduction in the number of items to measure the 13 original and four new self-concept facets of the SDQIII-A, the short form version of the instrument has lost little psychometric integrity and achieved similar outcomes to the established archive of SDQ III self-other agreement outcomes.

**Summary: Study 1 Discussion of Findings**

A major goal of the short version of the SDQ instrument was to expedite application and processing of the instrument while at the same time maintaining the psychometric integrity of the extended version within acceptable parameters. The design of Study 1 is such that the criteria outlined for appropriate psychometric evaluation of
short form construction by Smith et al., (2000), according to the further recommendations made by Marsh et al., (2003), have been observed. These results offer strong support for a multidimensional model of self-concept for mature-age students and provide further support for the Marsh/Shavelson (1985) theoretical model of self-concept upon which the SDQIII-A was based. The results attest to the need to account for the multidimensionality of self-concept when examining the self-concept of mature-age students.

Study 2: Discussion of Findings

Introduction

Study 2 aimed to test the theoretical assertions of the attrition model developed for the current study by utilising advances in statistical analyses in order to (a) explicate whether the demographic variables of age and gender, and the interaction of these variables, predict student persistence patterns, (b) elucidate whether background variables such as the students’ country of birth, marital and socio-economic status, their pre-course academic outcomes (i.e. pre-course acumen test, high school achievement), and their parental circumstances (i.e. parents’ place of birth, occupation, and level of education) are predictive of student non-persistence patterns, (c) determine whether students’ self-ratings of course and work demands, and social and family circumstances predict persistence behaviour, (d) test whether students’ self-ratings of course completion predict persistence behaviour, (e) determine whether significant others’ ratings of support and student course completion predict student persistence behaviour, and test the extent of agreement between student and significant others’ ratings of course completion, (f) test whether students’ Time 1 self-concept ratings are predictive of persistence behaviour, (g) test the impact of three self-concept/attrition interventions on first year TAFE students’ continuance in their course compared to a comparison group who did not participate in these interventions, (h) determine whether student-activated interventions or institution-activated interventions achieve higher persistence outcomes, and (i) compare and contrast the extent to which three different types of self-concept enhancement/attrition
interventions impact on facets of self-concept most relevant to the goals of the intervention, and whether these differences vary as a function of student persistence.

Predictors of Persistence

Overall, the results of Study 2 indicated that many of the variables attributed with predictive value in past attrition literature regarding student persistence patterns failed to be significant predictors in the current study.

An extensive number of variables and combinations of variables have been demonstrated in past attrition literature as potential predictors of student persistence patterns. Much of this past research into attrition in higher education has focused on the traditional student, typically between the ages of 18 and 24, and whose attendance is generally full-time at either a residential or community college facility. Recent research has demonstrated that a shift in the characteristics of students participating in higher education studies has occurred, where the greater proportion of students are now classified as non-traditional and comprised of older and working adults who are attending their non-residential programs of study in a part-time capacity (Summers, 2000; Rovai, 2003; Kerka, 1989). Generally, only a small percentage of Australian-based studies that investigate predictors of student persistence have been dedicated to the non-traditional student in the TAFE environment. The present research therefore treads relatively new ground investigating a century-old problem in higher education in Australia.

Age and gender. Two demographic variables particularly, namely age and gender and the interaction of these variables, have often been demonstrated in the literature to predict student persistence patterns (Windham, 1995; Stolar, 1991; Brooks, 1991; Hunter & Sheldon, 1980; Lanni, 1997; Wolf-Lockett, 1998; Fischbach, 1990; Mercer, 1993). Results of the present study indicated that individual analysis of the age and gender of the student, and examination of the interaction effects of these two demographic variables, did not provide evidence of any predictive value regarding student persistence patterns. This supports the outcomes of previous researchers with a
similar contention (e.g. Summers, 2000; Mohammadi, 1994; Baker, 1984; Duball & Baker, 1990).

**Student background variables.** The current research has also evidenced that various student background variables previously identified as potential predictors of student persistence (Zhao, 1999; Richardson & Attinasi, 1982; Hagedorn, Maxwell & Hampton, 2002; Fidler & Hunter, 1989; Bean & Metzner, 1985; Gerardi, 1996) were not established as such in the present study. Three logistic regression models were constructed for this aspect of the study. Model 2.1a produced non-significant outcomes for student background variables including the students’ country of birth, marital and socio-economic status. Model 2.1b identified non-significant results for pre-course academic variables such as pre-course achievement tests and high school achievement. The variables tested in Model 2.1c also produced non-significant outcomes, including measures of parental circumstances such as parents’ place of birth, occupation, and level of education. Outcomes of the present study therefore support the research outcomes achieved by previous attrition researchers (Wall, Lessie & Brown, 1996; Duball & Baker, 1990; Morris, 1994; Stoechker, Pascarella and Wolfle, 1988; Rudmann, 1992) who found no predictive value in student background variables to predict persistence patterns.

**Student self-ratings of course and work demands, and social and family circumstances.** Outcomes of the present study have demonstrated that student self-ratings in regard to course and work demands, and social and family circumstances are not predictive of students’ persistence behaviour. Substantial past attrition research has produced equivocal results in regard to these variables (see for example Lanni, 1997; Swager, Sarah, Campbell and Orlowski, 1995; Richardson & Attinasi, 1982; Bers & Smith, 1991; Duball & Baker, 1990), however very few of these studies have the non-traditional mature-age student as the population of focus.

For the current study, these results suggest that problems relating to course and work demands, and social and family circumstances do not generally impact on the
withdrawal decision of the student, or alternatively, suggest that student ratings of their perceptions are not a realistic appraisal of the likely effects of these variables on course continuance.

**Student and significant other predictions and support of course continuance.** Despite a growing belief by attrition researchers in the prediction value of student self-ratings of course completion (e.g. Okun, Weir, Richards and Benin, 1990), the current study demonstrated no significant relations between the student’s self-prediction of course completion and actual persistence patterns. Interestingly, bivariate correlation analysis of the students’ first measure of Tertiary Ability self-concept (which examines student self-worth through ratings of 6 items measuring their perceptions of confidence and competence regarding the program of study) and its value to predict persistence further supports the non-significant relations ($r = .02$) of student expectations and prediction of their continuance. Not surprisingly, bivariate relations between the students’ self-prediction rating and their Tertiary Ability self-concept outcome identified a statistically significant relation between the measures ($r = .46, p \leq .01$).

Further, ratings collected from students’ significant others regarding measures such as their expectations of and commitment to the TAFE student’s persistence provide no evidence of significant effect on persistence outcomes. Support for the assertion that the level of significant other support for the student in their program of study is related to persistence prediction was not found in the current study, but findings do lend support to the contention by Waggener and Smith (1993) that family encouragement may only serve as a predictor of a student’s intention to enrol in a study program. Analysis of TAFE students’ and their significant others’ ratings predicting course completion however, proved to be statistically significant and positively related. In regard to the latter finding, the dichotomous nature of the dependent variable in the analyses (i.e. either withdrawn or continuing), and because the far greater number of students were continuing, a small but significant correlation ($r = .27, p \leq .01$) between the student and significant other prediction of course continuance was anticipated.
Student Time 1 self-concept measures. The current study is the first to investigate such a diverse range of multifaceted self-concepts as a major component of a research undertaking that examines student attrition. However, despite the extensive range of self-concept facets examined, none of the 17-factor relations to continuance proved significant in the current study. Two logistic regression models were used in the analyses. Model 6.1a examined each of the 17 self-concept facets separately, resulting in non-significant outcomes for each of the academic (Maths, Verbal, Problem-solving, Academic and Tertiary Ability) and non-academic (Physical Ability, Physical Appearance, Same and Opposite Sex, Religion, Honesty, Parents, General Esteem, Emotional Stability, Inter-Social, Tertiary Social and Work Value) self-concept facets. The entry of all seventeen self-concept facets into the regression equation (Model 6.1b) also proved non-significant (chi square = 19.942, df = 17, p = 0.277) regarding the prediction of student persistence patterns. These outcomes again support the researcher-devised model of non-traditional student attrition by suggesting that academic and social aspects of the students’ self-worth are likely to be reasonably stable at the commencement of their program of study, and not directly linked to students’ decision to withdraw.

Summary: Predictors of Persistence

The selection of variables for the present analysis is extensive and representative of the focus typically found in attrition studies that search for the elusive predictor variable of student withdrawal. Following more than 80 years of research that seeks to identify this variable, attrition researchers appear no closer to its discovery. The temptation is understandable: should the offending characteristic be found and an appropriate intervention employed, many of the problems regarding poor retention rates would be removed from higher education. This aspect of Study 2 therefore examined two types of data, student demographic and background variables based on verity, and self-rating variables representing a range of students’ perceptions. None of those examined in the current study proved to have any predictive value of student persistence from either a univariate or multivariate perspective.
Conflicting findings regarding the relations of student persistence patterns to demographic and background variables in the literature may be unavoidable given the differentiation in preferences of statistical analyses and the diversity of student populations in higher education. Scaled ratings of the various perceptions of students and significant others have also been demonstrated as non-predictive in the present study, and are therefore by inference not substantially linked to student withdrawal decisions. This therefore suggests two possibilities: students' and their significant others' perceptions are appreciably uninformed, or the process of dropping out is set in motion at some later point in the student career and beyond the measures taken in the current study. The latter mentioned possibility appears a more reasonable rationale, and aptly reflects the postulates of the theoretical model of non-traditional student attrition developed for the present study.

The Impact of Intervention Strategies on TAFE Student Persistence Patterns

A central finding for the current study was the clear support for the set of self-concept and attrition interventions employed to improve student retention rates. The design of each of the interventions was in response to the researcher-devised theoretical model of non-traditional student attrition developed to explain possible influences on TAFE student persistence patterns (see Chapter 2). Three separate intervention strategies were applied to one Comparison and three Program groups (see Chapter 6 for further detail regarding sample group treatments). In short, the first intervention strategy is referred to as a Base Treatment and comprises student in-class self-concept exploration exercises, designed to improve various aspects of student self-concepts and self-understanding. Students participating in Program groups 1, 2 and 3 were exposed to the Base Treatment intervention while students of the Comparison group were not. The second set of interventions was also applied to the three Program groups only, and comprised three separate treatment strategies: Base Treatment only Program 1; Student-Activated Program 2; and Institution-Activated Program 3. In preparation for the measurement of the experimental intervention outcomes, prior analyses demonstrated that each of the four
sample groups (i.e. the Comparison and Program groups 1, 2 and 3) were statistically equivalent within acceptable parameters (see Chapter 6).

Results of the analyses indicate that student persistence rates were significantly higher for the Base Treatment only, the Student-Activated and Institution-Activated Program groups in contrast to the Comparison group. However, further analysis of the three Program groups indicates no statistically significant differences in persistence rates between the sample groups regardless of their exposure to a Base Treatment only, a Student-Activated or an Institution-Activated intervention design. The importance of these findings is that higher persistence rates was dependent on students’ participation in the Base Treatment intervention (Program groups 1, 2 and 3), where students who were exposed to self-exploration exercises, in contrast to the Comparison sample who were not exposed to the self-exploration intervention, achieved significantly higher retention outcomes as a direct result of their exposure to the self-concept enhancement program.

Percentage point gains made by the three Program groups support the findings that collectively, and as a result of the Base Treatment intervention program to which each of the three Program groups were exposed, they achieved significantly improved persistence rates (a mean of 7.36% improved retention) over the Comparison sample. These results suggest that self-exploration interventions that target self-concept may contribute to enhancing persistence rates.

The Impact of Self-Concept Enhancement and Attrition Interventions on Self-Concept

A significant result to emanate from the present study was the finding that, as determined by the theoretical model of non-traditional student attrition and guided by recent self-concept intervention advancements, targeted self-concept facets were affected by the interventions. The researcher-devised model of attrition designed for the current study (see Chapters 2 and 6) posited that students’ pre-course self-worth, although stable at enrolment, may be impacted by program attendance and may form the basis from which the student begins re-evaluating the self. Positive self-concept
outcomes during this period of re-evaluation are posited by the model to be pivotal to the continuation of the student in their program of study, while conversely, should re-evaluation outcomes impact negatively on the student, the model proposes that lower self-worth levels may result in the student entering into a process of disengagement and subsequent withdrawal from their program of study.

The interventions utilised in the current study were based on the recommendations stemming from the analysis of historical pitfalls and recent advances in self-concept theory, measurement and research by Craven, Marsh and Burnett (2003) to achieve a more effective approach to self-concept enhancement. According to the researchers, self-concept interventions are more likely to be successful if the intervention is focused on specific facets of self-concept. In the present study, academic aspects of self-concept were less likely to be impacted due to the absence of course outcomes to which the student would be exposed during the research period (Term 1).

The researcher-devised theoretical model of attrition asserted an a priori model proposing that higher levels of emotional stability, self-esteem and inter-social relations were the three aspects of student self-worth most likely to increase student continuance. A multivariate analysis of variance was applied to each of the 17 self-concept variables used in the study, where special orthogonal contrasts were constructed for the three Program groups (see Chapter 6). The outcomes achieved for this aspect of Study 2 confirmed the effects of student continuance and the specific intervention targeted facets of Emotional Stability, General Esteem and Inter-Social self-concepts. Fifteen of the students’ Time 2 self-concept scores proved statistically significant and positive when directly contrasted to students’ persistence outcomes, and only the non-target facets of Parent and Religion self-concept proved to have a non-significant relation to the attrition status of the student. Further, in contrast to Program groups 1 and 2, the Institution-Activated Program 3 group achieved significantly higher self-concept outcomes for intervention targeted facets of Emotional Stability, General Esteem and Inter-Social self-concepts for the interaction effects of program type and student persistence outcomes. Institution-Activated Program group 3 achieved the highest percentage in student retention,
achieving 10.8% improved retention over the Comparison sample, in contrast to the mean percentage retention outcome of 5.65% by Program groups 1 and 2.

Results therefore suggest that even greater retention outcomes can be achieved by targeting specific self-concept facets for intervention, and provides convincing support for the use of education-based intervention strategies that are designed to improve and maintain student emotion, esteem and inter-social relations.

Summary: Study 2 Discussion of Findings

The first set of investigations for Study 2 demonstrated that the numerous single and multiple combinations of variables identified in previous attrition literature as potential predictors of student persistence were not found to be so in the current study. Student demographic and background variables, together with measures of students’ perceptions regarding course participation, identified that students’ expectations of course participation and continuance were positive and stable at the commencement of their study programs, and alludes to the strong possibility that causes for student withdrawal occur during their participation in the program of study. These results also suggest it unlikely that a predictor variable will ever be identified to generally predict persistence in all institutions. Instead of a “one shoe fits all” approach, the value of outcomes of attrition research that have attempted to predict student continuance may need to be thought of as specific only to the institution that is the focus of the inquiry.

Investigations of the impact of self-concept and attrition interventions in the current study have provided evidence of the existence, role and relevance of a diversified range of self-concepts to mature-age participation in higher education, by (a) establishing the extensive multifaceted nature of self-concepts for mature-age students in higher education, (b) determining that multiple facets of self-concept are significantly positive for continuing students in contrast to withdrawn students, (c) evidencing that interventions based on appropriately designed self-concept enhancement interventions can significantly improve student retention rates, and (d) identifying that specific self-
concept facets targeted for intervention can achieve even further improvements in student retention outcomes. These results offer support for the researcher-devised theoretical model of non-traditional student attrition that posits reciprocal effects between student self-worth and subsequent persistence patterns.

**Study 3: Discussion of Findings**

Despite more than 80 years of attrition research, the question of why some students persist and others do not is still not resolved in the literature. The primary purpose of Study 3 was to explicate students’ rationales for choosing to persist or withdraw from their course of study utilising qualitative research methods to (a) determine what factors TAFE students who have persisted or withdrawn from their course identify as influencing their decision to persist or withdraw, (b) elucidate what differences exist between withdrawn and continuing students regarding their personal perceptions of individual acumen and program performance, and their likelihood to seek assistance during withdrawal crisis, (c) examine the extent a student’s previous course participation, career planning, and personal reasons for course enrolment impact on persistence behaviour, and (d) determine whether the level of course difficulty is a major contributor in non-persistence, and to what degree students rationalise withdrawal in order to maintain and protect levels of self-concept.

A total of 42 randomly selected students participated in semi-structured interviews, representing a 9.1% portion of the research sample who originally participated in the quantitative component of Study 2. Twenty seven students were classified as continuing and were individually interviewed face to face. Another 15 students, classified as withdrawn from their course of study, were interviewed by telephone.

A qualitative approach to the determining of factors which influence a student in their decision to withdraw from their program of study provided significant insight to the current study. Results identified distinct differences in attrition themes between withdrawn and continuing participants. Non-persisters primarily identified external
forces (e.g. work and family demands) as their principal reasons for withdrawal, while continuing students nominated internally generated issues (e.g. academic and personal inadequacies) as the principle threat to persistence in their studies. By design, the interview process permitted participants to eventually acknowledge self-perceptions of academic and other personal inadequacies as playing a role in their decision to withdraw, however, respondents initially only rated these particular themes as Secondary and generally only as minor influences. Personal reflections in the form of statements from non-persisters were in conflict with initial theme ratings and did not typically support a position that identified external forces as the most salient contributing factor to their withdrawal.

Thus one of the most powerful insights to come from this aspect of the study is that the withdrawn student will initially rationalise the responsibility for their academic failure to at least one external factor. However, given the right set of circumstances non-persisters will inevitably identify one or more internal forces as a contributing factor to their dropping out of their program of study. The phenomenon of individuals attributing causes for failure to external sources has been identified in attribution theory (Weiner, 1972; 1974). In the current study, evidence has been amassed to suggest that the withdrawn TAFE student contrives “last straw” reasons for dropping out (Cullen, 1994), and masks the real reasons for withdrawing by reporting more socially redeemable explanations that are significantly less threatening to reveal. The implications to follow from this circumstance have previously been identified by Johnes (1990), who reported that non-persisters feel guilty and ashamed of dropping out, and that while in some cases these feelings may be replaced by a sense of relief when the decision to withdraw later proves to have been the correct one, in other cases the feelings of shame and guilt may change to depression and lack of self-esteem. This supports the notion posited by Ryland, Riordan & Brack (1994, p. 57), who suggest that a student’s “indication of non-persistence may be a vote of no confidence in the ability to succeed rather than a statement regarding lack of persistence”.

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Continuing students felt far more confident about finishing their program of study at the time of interviewing than they had prior to the end of the research period, but would be Positively Surprised to achieve academic outcomes beyond their pass level expectations. This further supports the non-significant outcomes achieved in the quantitative study regarding the students’ course completion prediction (see Study 2 above), which suggests that the self-rating of student continuance was more likely based on hope rather than rationally-based considerations. At the time of interviewing, not one of the continuing students indicated that they felt Less Likely to Finish.

Distinct differences between continuing and withdrawn students were also apparent regarding their perceptions in seeking assistance. Continuing students generally believed that seeking out assistance from college staff would not have improved their chances of persistence. The far greater proportion of this group (70%) identified the passage of time and perseverance at working through self-doubt as reasons for their continuing in their studies, viewing these as a much preferred option to getting help. Withdrawn students believed that institutionally-managed assistance would be inadequate or of false piety. Further analysis of these outcomes however exposed a more powerful undercurrent for all students of the sample regardless of their attrition status. It is clear that students avoid the seeking of assistance with their problems at a crisis point where they have or are considering withdrawing, and although variations in reasoning are offered for such avoidance, seeking assistance and then to still fail serves only to accentuate the failure: a consequence which appears related to the potential for an increased negative self-concept.

Absent from both continuing and withdrawn student preparations for participation in higher education was the construction of an educational career plan. Withdrawn students appeared to be less clear about their purpose for undertaking studies, where for example, almost all of the continuing students had a clear rationale for their participation in the study program while less than half of the withdrawn students did not. Interestingly, although 100% of the withdrawn cohort indicated that they had not enrolled in a course of study since having dropped out, the entire group intimated
that they intended to return to a program of study in the future, but had either not made a
decision in this regard or had nothing specific in mind at the time of the interview
procedure. Most participants of the withdrawn group did not perceive their failure to
persist in their current course as a permanent set back, but believed the right set of
circumstances would eventually result in their educational success. However, career
planning was again not considered a necessary step toward this success.

Differences existed between continuing and withdrawn students regarding their
perceptions of the level of difficulty of their study programs, where continuing students
reported substantially higher ratings of difficulty than did non-persisters. Further, even
greater differences existed between the two groups regarding their reports to interested
parties of their course progress. The far greater majority of continuing students described
their progress with some accuracy, describing their difficulties with course material and
the need for perseverance. In contrast, non-persisters favoured the use of socially
accepted explanations for their withdrawal for the sake of brevity. Again, these
outcomes support the notion of a process of self-concept protection, where non-
persisters are typically employing coping strategies in an attempt to maintain self-
concepts.

Summary: Study 3 Discussion of Findings

Study 3 utilised qualitative methods to investigate the reasons why withdrawn
students dropout, but employed the unusual strategy of including in the analysis the
reasons offered by continuing students who at some point had considered dropping out.
This method highlighted what appears to be a naturally occurring human predilection to
the contrivance of socially acceptable reasons for dropping out by the withdrawn
student. Continuing students on the other hand, who because of their continuance appear
less threatened, reported more candidly their reasons when they had considered
withdrawing. While continuing students related their consideration of withdrawal to
internal causes, withdrawn students initially held external sources responsible for their
dropping out, but eventually identified similar personal oriented causes as those
nominated by continuing students. Of significant relevance to intervention applications was the discovery of the relations between student self-concept protection and their avoidance of assistance and support. The current study demonstrated that students avoided the seeking of assistance for their problems at a crisis point where they had or were considering withdrawing. Although variations in reasoning are offered for such avoidance, it appears that for the student to seek assistance and then to still fail would serve only to accentuate the failure and further impact on already vulnerable levels of self-concept.

**Strengths and Limitations of the Present Investigation**

The present study boasts a number of strengths in comparison to previous self-concept research and investigations concerning non-traditional student attrition in higher education. In this study, some major methodological limitations that have existed in previous research were successfully avoided and new developments in self-concept theory and research were capitalised on.

A principle applied from the outset of the current study was that research should be locally focused with empirically validated instruments. Craven, Marsh and Burnett (2003) suggest that self-concept research is plagued by the misuse of established instruments of measurement, having been developed for one special population and unwittingly applied to another without any consideration of psychometric integrity. Thus a multidimensional model of self-concept (e.g. Shavelson, Hubner & Stanton, 1976; Marsh & Shavelson, 1986) underpinned the development and testing of a psychometrically sound self-concept instrument for the population at the centre of the study. Demonstrating the nature and structure of self-concept for this group extended recent advances in self-concept theory and research to the circumstances of the mature-age student in higher education. The development of the SDQ III for use in the higher education environment included evaluation of the reliability and validity of a multidimensional self-concept measurement instrument, an important step forward for research practice in the study of the multifaceted nature of self-concept and the relations
of the construct to student attrition. The extension of this instrument to include self-concept facets of specific salience to mature-age students also provides researchers with additional scales of relevance to the specific population considered. Finally, the development of the short form version of the SDQIII-A ensures a new era of research can be conducted with the confidence of a psychometrically strong measure for this population.

The current research design was carefully planned in order to empirically test the relation of self-concept to student persistence. By extending a synergistic blend of two different theoretical orientations, a Theoretical Model of Non-traditional Student Attrition was developed specifically for the present study. Although the testing of all aspects of the researcher-devised model was not an aim of the study, the thesis has informed the development of a new theoretical model for further testing. The focus for the model was the largest episode of attrition to occur in the student career (i.e. the first 8 week period of the program of study), an attrition crisis point typically overlooked by researchers. As a result, students' initial self-concept scores and other student outcomes were not identified as reliable predictors of persistence patterns. This empirical investigation provides a worthy contribution to the debate regarding the limitations in the generalisability of attrition predictor variables from one student population to another.

The current study involved a large number of participants given the difficulty of access to and poor voluntary participation rates of this population and the extensive testing sessions conducted. This enabled more sophisticated analysis to be undertaken subsequently permitting a greater degree of confidence in the outcomes of the study. The current study also utilised sophisticated and powerful statistical analyses. Confirmatory factor analysis and structural equation modelling permitted the evaluation of the psychometric properties of a self-concept measure for this population; an accomplishment which is rare in previous attrition research. Logistic regression and multivariate analysis of covariance models utilizing specially designed orthogonal contrasts were constructed to test the effects of self-concept and attrition interventions
specifically designed for the current study. Lastly, qualitative interview data enriched the results emanating from the quantitative study, providing greater insight into the mechanisms that influence student persistence decisions. The coalescing of quantitative and qualitative research methods in the current study have resulted in enriching the findings.

The results of the current investigation also need to be interpreted in the context of the limitations of the study. For example, as a result of the very specific focus of the study, other possible influences on student attrition which were beyond the parameters of the current research undertaking were not examined. Hence, other factors may also impact on attrition. In addition, effects in student academic facets of self-concept were not anticipated because academic outcomes are not typically issued during Term 1 of the TAFE student study program. Thus, it would be reasonable to conclude that students participating in the current study did not withdraw on the basis of notified academic failure. However, whether students are coping with the academic content of the study program is perhaps a more likely influence on a student’s intention to withdraw.

Significant differences between continuing and withdrawn students’ Academic self-concept facets were not demonstrated in the current study, however, as discussed earlier in this chapter was the circumstance of students offering socially redeemable reasons for withdrawing, thereby masking the true reasons for departure outwardly, but also internalising these externally oriented causes in an effort to maintain self-worth levels. What has been established in the current study is that Emotional Stability, Esteem and Inter-Social self-concept scores are significantly higher for continuing students. Qualitative outcomes have identified that students’ inability to cope with the academic content of the study program is the issue most typically masked with contrived reasons for non-persistence. It is likely that outcomes describing the Emotional Stability and Esteem self-concept differences between continuing and withdrawn students relate to students’ inability to cope with academic content, however, the extent to which this contributed to students’ withdrawal decisions could not be accurately identified in the current study. Further
research would need to consider both an empirical and qualitative approach in order to avoid these pitfalls identified in the current study.

This study was unable to determine a causal ordering in the relation between self-concept and persistence patterns. In other words: Did the identified facets of self-concept influence student persistence, or did continuing in their program of study influence student self-concepts, or were the effects of both these processes reciprocal? Further causal ordering research in this regard may afford valuable insight.

The Student- and Institution-Activated intervention strategies were derived from the Theoretical Model of an Institution-Wide Retention Plan (see Appendix J.1 for further details) developed specifically in preparation for this thesis. This model has a computerised format as a critical pre-requisite to its application. In the absence of computer systems able to manage the monitoring aspect of student progress at the time of the current study, the interventions applied in the experimental intervention were manually applied. Manual application of the strategies demonstrated the complex nature of monitoring student activities and progress, particularly in regard to tracking non-persistence patterns on a large scale. A manual system that alerts the institution to a student contemplating withdrawal is slow and relies heavily on a network of staff to transmit the necessary information in an effective and timely fashion. The success of an alert system is determined almost entirely by the speed with which the vulnerable student is identified and the application of the institution’s response. To some degree, and despite best efforts, reports of students identified as vulnerable to withdrawal were slow to be reported, a circumstance that may have negatively influenced persistence outcomes for the Institution-Activated Program 3 group. This situation highlights the importance of a computerised system of monitoring and reporting, enabling the intervention to reach the student before the disengagement process from the study commitment has finalised. Further research in this regard that utilises a computerised application could be useful to test the expectation of improved intervention outcomes.
Implications for Research and Theory

The current investigation has advanced our understanding of the structure, nature and measurement of self-concept for the non-traditional student in higher education. Consistent with high quality research, the current investigation also serves as a catalyst for guiding future research.

Now identified as the larger proportion of the higher education student population, it is evident that the investigation of the multidimensional self-concept of mature-age non-traditional students is indeed a worthwhile endeavour. The current study has advanced this field of research by successfully identifying the SDQIII-A as a reliable and valid self-concept measurement tool for use with non-traditional students. This has significant implications for future research with this population. Clearly, researchers need to account for the multidimensionality of self-concept in future research with non-traditional students. In addition, it is vital that the next generation of researchers demonstrate the reliability and validity of the self-concept instrumentation employed in future research to ensure such instrumentation accounts for the multidimensionality of self-concept and is demonstrated as reliable for that population.

Although a perpetual goal of self-concept researchers is to devise a multidimensional measure of self-concept to adequately service a range of populations, thus enabling direct comparison among these different populations, such a goal brings with it inherent difficulties. While the SDQIII-A was developed for local application with a specific population (e.g. TAFE institutions), the development of the instrument was guided by the view proposed by Harter (1990, p. 308) who suggested that a potential disadvantage of population-specific instruments is that they become “so unique that one cannot make meaningful comparisons across groups. ... The optimal strategy, therefore, would be one in which instruments are kept as similar as possible, for purposes of comparison, but also include modifications where necessary”. The structure of the SDQIII-A was purposely designed to not only enable general application to non-traditional student populations across a variety of institutions, but to also allow
application of the instrument throughout higher education systems internationally. The development of sound measurement instruments may contribute to stimulating research in which the multidimensional self-concept of these students may now be confidently measured and thus investigated. Teachers and researchers can confidently utilise the SDQIII-A to ascertain the self-concepts of mature-age students in the higher education environment. The identification of an appropriate instrument for this population also ensures that researchers may utilise the SDQIII-A to address substantive issues based upon between-construct studies with this population.

The findings of the current study have significant ramifications for our theoretical understanding of the self-concept of non-traditional students as well as the relation of the construct to attrition. A multidimensional model of self-concept was the key theoretical basis guiding this investigation. Current models and theories were critically assessed and the Shavelson et al. (1976) model and the subsequent Marsh and Shavelson (1985) revisions to this model were judged to be the best theoretical model of the structure of self-concept available (Byrne, 1995). These results attest to the multifaceted structure of self-concept for mature-age students. It is only through the application of a multidimensional measure of self-concept that the relation of the construct to student attrition can be identified and understood.

When investigating student reasons for withdrawal, an unusual methodological approach was taken to not only examine the reasons why withdrawn students had dropped out, but to also include in the analysis the reasons offered by continuing students who at some point had considered withdrawing. By examining both withdrawn and continuing students' accounts of the disengagement process the researcher has the opportunity to determine differences in student perceptions. In the current study, this method highlighted what appears to be a naturally occurring human predilection to contrive more socially accepted reasons (e.g. work demands) for dropping out by the withdrawn student. The continuing student, who because of their continuing status feels less threatened, report more candidly their reasons when they had considered withdrawing from their studies. The implication therefore is one of serious concern—the
very real possibility that students’ reasons for dropping out reported in past attrition research have more likely been a commentary of the more socially redeemable reasons contrived by withdrawn student populations. This example has demonstrated that for future research in attrition, every effort should be made to verify student reports using multiple methods in the data collection strategy for the purposes of cross-validating outcomes.

The researcher-devised Theoretical Model of Non-traditional Student Attrition is potentially the most valuable contribution made by the current research to the study of self-concept and the relation of the construct to attrition. In short, the model is in reference to the student who re-evaluates their participation in their course of study and engages the process of separation from the study commitment. The theory postulates that this action begins immediately following their enrolment in (or their commitment to undertake) the course. On each occasion that the academic and social self-concepts of the student are negatively impacted (e.g. through failure to cope with an academic challenge), re-evaluation of their participation in the course is undertaken in conjunction with an increase in separation behaviour patterns. As the adjustments to self-worth are made, the student begins a process of intercession, cycling between re-evaluation and disengagement. For the student who will inevitably withdraw, the process is of a spiralling nature that destabilises academic and social self-worth levels and continues until disengagement from the study commitment (or intent to leave) is complete. The student compensates with the failure of non-persistence by generating irrationally-based but socially accepted reasons for leaving (e.g. work demands).

Through the identification of self-concept constructs that act as mediating variables to persistence behaviour, effective measurement of their impact can alert the researcher to the vulnerable student. With the application of an appropriate intervention, the impact of the cyclic pattern of disengagement from the study commitment may be averted. Hence causal modelling studies to further test the theoretical propositions proposed in the model would be useful. In addition, stronger intervention designs focussed on specific facets of self-concept also need to be developed in order to
capitalise on findings from the current research. With this in mind, further research into effects traditionally viewed in general research as a threat to the validity of intervention outcomes (e.g. halo and Hawthorne effects etc.) may need to be reviewed regarding their connection to self-concept enhancement interventions. By their very nature, intervention programs that pursue self-concept enhancement through increased levels of personal attention to the student may require future research to take a new look at the presently accepted role and subsequent influence that these effects are perceived to have regarding the validity and subsequent interpretation of intervention outcomes.

An integral aspect of any intervention is that strategies offering assistance and support to students must be accessed by the student if the intervention is to succeed. What has not been fully explored in this and previous attrition research is the investigation of assistance avoidance behaviour by the student intending to drop out. Student descriptions collected in the current study provide some evidence of a process in avoidance behaviour which figures significantly into their disengagement from studies. Although the researcher may view the intervention that offers assistance as a positive asset for the student, the student may however perceive the support program as part of the failure process. The initial process of disengagement and eventual separation from the study commitment takes place during a relatively short period of time (e.g. the first 6 to 8 weeks of Term 1), further complicating the intervention process with time constraints. Further research is required to explore the means to present support in such a way that the student perceives assistance as a positive step toward completing their study program.

Finally, in keeping with the proposition by Tinto and Love (1995), it would not be unreasonable to assume that the effects of Term 1 student self-worth may impact on the withdrawal decisions that occur later in the student career. The current study has demonstrated that specific facets of self-concept can be successfully targeted for intervention to increase student persistence rates. New sustainable intervention designs that positively impact student self-worth over the long-term should be considered an important pursuit of future research in attrition.
Implications for Higher Education Practice

The SDQIII-A has been established as an appropriate tool for use in the higher education setting for the assessment of the multidimensional self-concepts of mature-age students. The SDQIII-A may be confidently administered in intervention projects in which specific programs aim to increase the self-concepts of the non-traditional student. From a practical perspective, the ability to measure the self-concepts of these students provides an important outcome measure for teachers to gain greater insight and understanding of the nature of the non-traditional student and of the characteristics necessary for successful intervention for this population.

This study has demonstrated that self-concept enhancement is related to improved student retention, and that enhancement programs can be inserted into existing study programs within the natural learning environment successfully and without undue costs or disruption. The Base Treatment intervention employed in current study was referred to as the New Student Support Program (NSSP) and the success of the program in improving attrition rates has ensured its continued use beyond this thesis. This circumstance denotes its practical application to educational practice. In short, the New Student Support Program forms part of the syllabi of a communication module (or similar generalist subject) undertaken by the student during the first semester of the course program. At the time of writing, TAFE delivers eighteen nationally accredited communication modules and most Business Services’ students are required to complete at least 1 and as many as 3 such modules during their first semester program. The student/teacher ratio for the communication modules remains at 15:1, and face-to-face teaching hours for the entire suite of communication modules ranges between 15 and 40 hours. The communication modules most typically applied in the TAFE environment make provision for an implementation period of between 20 to 22 hours, however, most teachers are generally able to complete the learning outcomes identified in the syllabus within the minimum 15-hour period. Activities similar to those utilised in the experimental intervention for the current study designed to encourage student self-exploration (Base
Treatments) formed part of the module syllabus for implementation during the remaining hours for each of the communication modules undertaken.

New Student Support Program strategies include (a) discussion sessions examining issues such as esteem building, individual differences, learning styles, and emotive issues related to study, family and work circumstances, (b) the provision of regular group exercises and discussion sessions to examine self-concept and related issues, (c) the provision of a greater level of teacher input (e.g., increased levels of student feedback, with formalised times for access to the teacher for student consultation), (d) ensuring that students are provided with organised appointments with appropriate counselling services upon notification of an intention to withdraw (including the establishment of a verbal contract regarding the appointment), and (e) the establishment of a team building and peer support network to ensure that each member of the group is at all times accessible to all other group participants. Best practice for application of the intervention is to apply the steps intermittently throughout the length of the module (typically one semester).

Outcomes of the current study demonstrated that teachers were more than capable to implement and maintain the goals of the New Student Support Program. Teacher preparation for participation in the program was based on a series of workshops where they were instructed on the strategies and implementation procedures for the New Student Support Program. Specialist teachers with substantial qualifications in psychology participated in the teacher workshops to supervise examination of issues related to self-concept and other self-exploratory exercises for delivery to the students. Teachers’ skills were also developed in discussion techniques to focus on and convey issues of relevance to the program, including (a) the implications of self-concept as a mediating variable to other desirable outcomes (i.e. persistence, achievement, self-worth), (b) the importance of the construct in itself (i.e. maintaining a positive and stable self-concept across academic and social facets, in the social, work and college environs), (c) highlighting important and relevant outcomes regarding the construct as evidenced in past research, and (d) maximising internally focused feedback regarding the interpretation and implications of individual student outcomes generated from completion of the instruments. Finally,
teachers were informed of the import of monitoring and reporting student attendances, behaviour patterns of concern, and so forth, and instructed in the procedures to ensure the earliest notification of a student experiencing disengagement.

The success of the New Student Support Program to improve student self-concepts establishes the program as an extremely useful tool for educational practice and retention maintenance. However, the current study has also established that a significant number of other circumstances influence students' decisions to withdraw (e.g. assistance avoidance). The New Student Support Program should therefore be considered as only one strategy of a multifaceted retention plan. The following section provides an overview of the institution-wide retention strategy from which the New Student Support Program was originally acquired.

A Theoretical Model of an Integrated Institution-Wide Retention Plan

Another major theme to emanate from this thesis, and as the outcomes from the experimental intervention would suggest, is that a single intervention effort to improve retention rates cannot be expected to cure all ills, but should be considered instead as only one facet of a much larger multifaceted institutional intervention strategy design where independent strategies are integrated to work cooperatively to achieve and maintain an improved level of student persistence.

In preparation for the current study, and based on the notion espoused by Tierney (1992, p. 616) that we need to go further by not only delineating the scaffolding for theories "but also by suggesting how we might employ such theoretical orientations in the daily operations of our institutions", the writer developed a theoretical model for an institution-wide retention plan. Aspects of this plan were utilised in the experimental intervention (see Chapter 6 for an overview of the strategies used from the model), but in the absence of a computerised facility (a critical strategy in the implementation of an institute-wide plan), a manual system was required to be employed. The experience of the manual alert system applied in the experimental intervention compelled the writer to
further modify the original design of the theoretical model in order to link key findings from this thesis with those from the literature on attrition generally.

The Theoretical Model of an Institution-wide Retention Plan utilises a multiphasic approach that spans the entire student career (see Appendix J.1 for a detailed outline of the theoretical model). The approach consists of a structured process of interventions that are logically interconnected, where each strategy not only meets the requirements of effective intervention at an identified critical point of student attrition, but also metres appropriate intervention activities to span the interval to the next critical attrition point. Further, many attrition researchers (e.g. Artman & Gore, 1992; Marinaccio, 1986) suggest that a single circumstance of attrition should not be considered in isolation, but instead thought of as one problem in a chain of many, where each is influenced by the attrition problem that precedes it, and where it in turn, impacts on the attrition problem to follow. It is therefore imperative that an all-encompassing retention plan be developed in order to achieve maximum positive outcomes in reducing student attrition. To this end, a comprehensive set of four retention strategy classifications (i.e. sorting, supporting, connecting, and transforming) prepared by Beatty-Guenter (1994) has been utilised in the development of a framework for the Retention Plan. The classifications are described as follows:

1. Sorting involves those strategies that attempt to place students into (a) college programs most suited to their academic and vocational goals, (b) courses according to their current academic abilities, or (c) programs according to their “at-risk” status;

2. Supporting involves assistance to students in meeting their needs with regard to financial, family, or work considerations;

3. Connecting includes techniques intended to create a bond between the student and the institution; and

4. Transforming involves strategies intended to effect changes in students, such as remedial education or career counselling, or changes in institutional character, such as curricular reform or instructional professional development.
The retention model developed for the current study therefore provides strategies to direct and improve the institution’s role in reducing student attrition, including the development of an effective enrolment and student orientation management plan that will help to foster an environment for persistence, encouragement of institution-wide participation in the plan, an ongoing institutional research effort, and an evaluative system designed to assess the effectiveness of the plan (Artman & Gore, 1992). The strategy most likely to increase and maintain improved retention rates is the structured involvement of faculty members, where for example, the institution assists in the development of methods for increasing student/instructor out-of-class contact without overburdening instructors; draws upon the expertise of its instructors to gather pedagogical devices for enhancing student participation within the classroom; quantitatively and qualitatively measures the effectiveness of the faculty effort at the end of each semester; and formally presents these results for management review (Hellmich, 1989).

The next phase of the retention plan is to establish data collection phases at proven attrition crisis points, including registration, enrolment and post-enrolment. A series of instruments have been developed for this crucial aspect of the retention plan, and each plays an important role in the Academic Career Evaluation System (ACES). The structure of the instruments allows for persistence projections to be made, and in the case of a non-persistence alert being activated, appropriate steps are taken for the implementation of an advisor intervention. Information gleaned from each of the instruments is used with other student related information to update the student’s profile and Educational Career Plan.

ACES refers to the organisational, structural and operational aspects of a student self-evaluation and monitoring process that collects information concerning issues of student perceptions and expectations regarding educational goals, career planning, course progression, module and teacher evaluations, activity statements, and cognitive-affective self-evaluations. The system not only contributes to the enhancement of the Educational Career Plan distributed to students, but also provides for several other key
outcomes, including promoting the ongoing awareness of the student regarding their educational career, establishing an organised system of personalised attention for the student, supplementing existing avenues for information collection with opportunities for attrition projection from ongoing updates of current student status, and the linking of several individual college services (e.g. accessing the computerised student information system) and resources (e.g. New Student Guide, student dropout brochure).

As part of their major program of study, students are required to complete a module comprising research activities that are designed to not only increase the student’s understanding and insight regarding their educational and vocational careers, but also of the student as an individual. The module requires the student to complete various reports (e.g. issues of research regarding their career aspirations and objectives, use of college resources such as instructional learning centres), self-assessments (e.g. self-concept assessment ratings, academic performance, self-assessment of their participation in the course), and other forms of assessment (e.g. student ratings according to descriptions of course material covered and its relevance, assessment of teachers), for implementation at specific and pre-determined times that align with attrition crisis points (e.g. completion of various reports and assessments during mid-semester vacation). Successful completion of the module attracts credits toward the student’s major qualification. Other strategies included in the retention plan are the Academic Career Evaluation Journal and the Educational Career Plan. Each is required to be regularly updated by the student by direct computer input into the Academic Career Evaluation System.

The previously discussed strategies form the basis for the mechanism considered most pivotal to an effective retention system. Referred to as “RESCUE” (RE-establishing Student Contact for Undefined Exits), the system is defined as a student monitoring and dropout alert system, and strategies include the establishment of accurate, current and historical measures of attrition; a computer-based software package that is designed to identify and assist students experiencing academic difficulty; structural systems and strategies regarding reporting procedures (e.g. mid-semester
alerts) and interventions (e.g. the issuing of letters to students regarding the institutions concern and support, to contact a named advisor etc.); and program piloting systems and methodology for the ongoing research and evaluation of the project as it evolves (Rudmann, 1992; Mese and Spano, 1989; Bers, 1988; Simpson, 1987).

The RESCUE system is accessed through the ACES system, where action is initiated when a student is identified as at-risk and registers an Alert warning. Computer generated correspondence is issued automatically to the student in a personal letter format, signed by the institution’s Director. Letters sent to the student have details extracted from their ACES generated student profile in an attempt to more personalise the document.

Extensive detail regarding integration of other fundamental program designs is also included in the retention model, including staff training in attrition issues; dropout information and resource package for teachers; student support services (e.g., counselling, tutoring, financial and academic advising services); student facilities (e.g., parking, cafeteria, and childcare facilities); and student resources (e.g., Instructional Learning Centres, student social and recreational resources, and information brochures and booklets).

Various aspects of the Institution-wide Retention Plan have already been piloted in a number of minor, short-term interventions of basic vocational studies programs, with an official and independent audit of retention outcomes undertaken. The first study considered the application of the ACES instruments and the RESCUE intervention strategy. Although the study was structured more to test the design of the instruments and the intervention, encouraging retention results were never the less achieved in the trial program. For example, the treatment group \( N = 37 \) achieved an increased retention rate of approximately 16% over that of the control group \( N = 28 \), and around 18% over that of the student attrition rates established in past programs spanning approximately two years prior to the trial study \( N = 174 \).
In the second trial \((N = 59)\), a number of modifications were made to the ACES instruments and the RESCUE intervention, and an abbreviated version of the ACE Journal was included in the treatment program. Although retention outcomes that approximated the previous trial study were achieved (using an almost identical methodology), the second trial program provided even more significant outcomes regarding insights for the design of the full version of the ACE Journal and the ACER module.

It is not suggested that the outcomes of the trial studies are conclusive evidence of the effectiveness of the ACES instruments or of the RESCUE intervention. What the trials do suggest, however, is that establishing an appropriate framework for attrition intervention is a critical first step in the model. The testing of individual initiatives and interventions should be coordinated and considered from a broader view of the overall retention model, undertaken via a step-by-step approach according to an appropriate research-based application of theory, method, measurement and reporting—a necessary and integral strategy of the Retention Plan itself. Kozeracki (1998) suggests accelerating changes in the external environment to institutions (e.g., differences in the economy, government relations, the demographics of student populations, and the development of new technologies) have resulted in substantially increased demands for institutions to improve retention rates.

The design of the Institution-wide Retention Plan was developed in response to these new demands. The Retention Plan is presented not as a model for direct application for all institutions of higher education, but only as a theoretical guide that will inevitably require modification and development for local application. The Retention Plan requires extensive commitment in regard to time and effort on the part of stakeholders, and the writer suggests that achieving ongoing, positive outcomes encourages all concerned to continue to strive in reaching and maintaining the major objective—an effective student Retention Plan.
Summary

The current study has employed the latest advances in self-concept theory and research by applying a model of the multidimensional nature of the construct to the study of mature-age student attrition, demonstrating that not only is the self-concept of the mature-age non-traditional student multifaceted, but that the SDQIII-A is a valid and reliable self-concept measurement tool for this population. Findings from Study 1 have significant theoretical and practical significance and will hopefully ignite an upsurge of research with these students now that a psychometrically and theoretically strong measure has been identified.

The thesis has also made a major contribution to the study of non-traditional student attrition patterns with the development of the Theoretical Model of Non-Traditional Student Attrition, a model developed by the writer that takes a structured view of mature-age student attrition in higher education, providing researchers with the opportunity to further advance our understanding of adult attrition from this unique perspective. Based on the premise that individual causes of attrition and their subsequent interventions should not be considered in isolation of the broader needs of the institution, a theoretical model of an institution-wide retention program (developed in preparation for this thesis) provided the basis for the intervention designs applied in Study 2. Through a coalescing of quantitative and qualitative research methodology, Study 3 provided valuable insight of the characteristics of the processes and student considerations in student persistence decisions.

The design and development of instruments for the present study have contributed to the integrity of the research undertaking and have also made major contributions to the fields of attrition research and educational practice. This chapter has also shown that the findings produced by the present investigation are compelling, as results are based upon a carefully constructed research design that successfully capitalised upon recent advances in theory and research to avoid some of the previous methodological flaws plaguing this area of research.
CHAPTER 11
SUMMARY AND CONCLUSIONS

Personal observations of extremely high attrition rates in TAFE served as the initial impetus for the current investigation. Subsequent examination of the established attrition literature indicated that on average 45% or more of students who commenced higher education programs in western cultures would fail to complete their studies, and that this was not a problem isolated to modern educational systems, but had been the case for more than 100 years. Recent research suggests that more than 50% of students entering higher education generally are now non-traditional (i.e. mature-age students who are ostensibly working and studying part-time), which has resulted in a more diverse set of problems and an increasing demand for institutions of higher education to be more accountable for their retention outcomes.

Over 80 years of investigations into the possible causes of student attrition by researchers have in the main produced paradoxical findings. Thus, researchers seeking the means to improve retention in higher education institutions are cautious regarding their interpretation of the outcomes of past attrition research that is typically not generalisable. In addition, conflicting findings across diverse areas of attrition research may be attributed to a lack of application of sound theoretical models in the research, the use of poorly structured or ill-defined research methods, the use of imprecise measurement instruments without demonstrating the psychometric properties of instrumentation, and an absence of large-scale empirically valid investigations that capitalise upon advances in statistical methods.
Based on the premise that "theory guides research" (Bean, 1982, p. 17), and because much of the research appearing in the literature either fails to utilise attrition models or draws from diverse theoretical backgrounds that in most circumstances, continue to remain independent of each other and without reference to the possible combined or interactive effect of student, institutional and other factors on persistence (Tinto, 1986), a researcher-devised Theoretical Model of Non-Traditional Student Attrition was developed specifically for the current study. The model was based on the work of noted attrition theorists Tinto (1975; 1982) and Bean (1980; Bean & Metzner, 1985; Metzner & Bean, 1987), and incorporated recent advances in self-concept research.

The model developed makes a contribution to our understanding of persistence patterns in two significant ways. Firstly the model focuses on Term 1 of the TAFE educational programs calendar—a period identified as one that accounts for the largest single episode of attrition in the student career, yet is typically overlooked by researchers. Secondly, the model incorporates advances in self-concept theory by accounting for the multidimensionality of self-concept and its relation to attrition. Although few studies in attrition had examined the influence of self-concept constructs regarding student non-persistence patterns, fewer still had utilised the latest advances in research to test the multidimensional aspects of the self-concept, choosing instead to utilise a single, global measure of the construct. Hence, the present investigation makes an important contribution to the literature.

The present investigation also examined features of the researcher-devised model developed in the context of a synergistic multi-method research design. Key strengths of the present investigation included: employing a research design in which theory, method, application and analyses are inextricably intertwined; utilising the latest advances in quantitative and qualitative research methods to emanate from attrition and self-concept research; employing a strong longitudinal, quasi-experimental design to investigate mature-age student attrition; utilising a large sample given the special population studied; developing and administering a multidimensional measure of self-
concept to adequately account for the multidimensionality of self-concept in the research design; employing interventions that targeted specific facets of self-concept related to the goals of the intervention; and conducting sophisticated statistical analyses.

Before substantive issues were addressed (i.e. the influence of self-concept enhancement interventions on student persistence patterns), the psychometric properties of a valid and reliable self-concept measurement instrument were demonstrated for the population under consideration. Findings emanating from the study demonstrated: the structure of self-concepts for mature-age students in the higher education environment as multidimensional; a reliable and valid self-concept measurement tool to utilise with the TAFE population; and the important relation between mature-age self-concept and student persistence patterns.

In this regard, the yields of the present study are multi-fold. The long version of the SDQIII-A was established as a reliable and valid measure of the multidimensional self-concepts of mature-age part-time students. Confirmatory factor analysis demonstrated that, despite a lack of research describing the structure and nature of self-concepts for non-traditional students in higher education, at least 17 distinct self-concept facets were identified in the current study for this population. These findings challenge previous conclusions purporting that a unidimensional self-concept measure for this population is an effective methodology, and offer clear direction in further research in that self-concept for non-traditional students cannot be clearly understood without accounting for the multidimensionality of self-concept in research designs. Further, by abiding by strict guidelines for short form construction, a significantly condensed version of the SDQIII-A was developed for ease of application without compromising the instrument, confirming it also as a reliable and valid measure of multidimensional self-concepts for this population.

The current study also demonstrated that student demographic, background and numerous self-rating measures gathered for an extensive range of student circumstances, identified in past literature as potential predictors of attrition behaviour, were not found
to be accurate predictors of persistence patterns in this study. These results suggest that reasons for non-traditional student withdrawal may be far more complex than that which can be explained in the data of easy to access variables reporting student demographic and background characteristics. Further research in this regard must begin with reference to established theoretical models of student attrition, utilising strong methodology and analyses in order to advance our understanding of the relations of these variables to student persistence behaviour.

A major focus for the study was the application of a set of self-concept and attrition intervention programs and the subsequent analysis of their impact on student persistence and self-concept levels. Students of three separate sample groups exposed to a base treatment program of self-exploration achieved significantly higher rates of continuance than did students of a contrast group who were not exposed to the base treatment program.

A further set of interventions were applied to determine the effects of a student-activated support program (i.e. where the student intending to withdraw is encouraged to initiate support from existing college services) in contrast to an institution-activated support program (i.e. where the institution manages the monitoring, identification and intercession of the student intending to withdraw for intervention) on student persistence rates. Outcomes of this aspect of the study demonstrated that although students who experienced a monitoring and support program managed by the institution compared to comparison groups who had no support program, or who participated in a program that relied on the student to activate support, achieved a further increase in retention rates however, the retention increases were not statistically significant.

Orthogonal contrasts were constructed for multivariate analysis of variance statistics to examine differences between student self-concept measures taken at the beginning and again at the end of the research period and tested for the effects of the construct on the students’ attrition status. Results indicated that for continuing students, 15 of the 17 self-concept facets domains proved positive and statistically significant.
Further, analyses of the interaction of the self-concept and persistence outcome variables according to the three experimental intervention groups indicated that for the sample group achieving the highest rate of persistence (i.e. the Institution-Activated intervention group), targeted self-concept facets for intervention such as Emotional Stability, Esteem and Inter-Social Relations self-concepts were found to be significantly higher for these students than for the participants of the remaining sample groups. These findings offer further support for self-concept theory and research by demonstrating that self-concept interventions have a greater probability of succeeding if specific facets of self-concept (e.g. Emotional Stability, Esteem and Inter-Social self-concepts) are targeted and the multidimensionality of self-concept is accounted for in the research design.

To reiterate, the findings emanating from the present investigation extend attrition research by establishing that interventions which utilise student self-exploration strategies can significantly increase student retention outcomes. Further, exposing students to personal development strategies and the establishment of personal support networks can further increase student retention outcomes over and above that achieved by a base treatment comprising student self-concept exploration exercises. These results therefore suggest that an institution-managed student dropout monitoring and intervention program is a promising intervention for enhancing retention rates.

Outcomes from the current study further advance our understanding of the rich tapestry of relations of non-traditional student circumstances, self-concept and persistence patterns in higher education. As a result of the outcomes from the qualitative aspect of the study in which semi-structured interviews were conducted with research participants, substantial insight into the nature of student persistence patterns, and of the major attitudinal differences between continuing and withdrawn students were identified. Continuing students attributed their difficulties to an internal locus of control such as doubts about their academic ability, their fear of alienation and isolation, and feelings of low self-esteem.
In contrast, participants who withdrew from their course of study attributed their decision for non-persistence to an external locus of control whereby forces outside of themselves caused them to withdraw from their course. Despite the fact that the problem of why some students persist and others do not is still not solved, outcomes from the qualitative component of this study have identified a potential incriminate—that self-concept influences mature-age student’s decisions in regards to continuing or withdrawing from their course of study. The results also suggest that students avoid seeking assistance when they consider withdrawing from their course of study. Although many reasons were offered by students regarding this avoidance behaviour, a more plausible explanation may be that for a student to seek out assistance and then to fail anyway serves only to accentuate the failure; a consequence which appears related to the potential for an increased negative self-concept and a circumstance that students seem to strive to avoid above all else.

The current research has also made a contribution to the development of potentially useful qualitative research tools to investigate attrition with the development of: an interview package that comprises separate and comprehensive interview schedules for continuing and withdrawn students, a classification system of attrition themes, a schedule for the weighting of responses, and a format and procedure schedule for semi-structured interviews. Hence, the findings derived from the qualitative component of the present investigation provide fresh insights on the psychological profiles of continuing and withdrawn students, and have identified the influence of self-concept on decisions to continue or withdraw from a course of study, and may also offer some insight into the process of self-concept maintenance and the reluctance of the withdrawing student to participate in support programs.

The findings of this study are also of significance to researchers and educational practitioners. The time appears apt for researchers to capitalise on the findings of this investigation and extend the research to further elucidate the role of self-concept in relation to retention in TAFE and other educational settings. It is also timely for policy makers to implement effective interventions that attempt to address the high attrition
rates in TAFE. In this regard, a major theme to emanate from this thesis is that a single intervention effort to improve retention rates cannot be expected to cure all ills, but should be considered instead as only one aspect of a much larger intervention where independent strategies are integrated to work together to achieve and maintain the optimum level of student persistence.

The interventions utilised in the current study seem promising but were manually applied. A manual system that alerts the institution to a student contemplating withdrawal is slow and relies heavily on a network of staff to transmit the necessary information in an effective and timely fashion. The success of an alert system is determined almost completely by the speed with which the vulnerable student is identified and the application of the institution’s response. As a key piece in the retention puzzle, technological advances now provide the hardware to effect the theoretical model of an institution-wide retention strategy.

In summary, this investigation has provided clear evidence that attrition intervention programs for part-time mature-age students that comprise aspects of student self-exploration can achieve substantial increases in retention numbers, providing further support for the principles espoused by recent self-concept research which suggest that targeting of specific self-concept facets may increase the likelihood of successful self-concept intervention outcomes. Institution-activated initiatives that monitor and intercede in non-persistence behaviour patterns can further increase student retention, but it is essential that such programs be part of an integrated institute-wide initiative in student retention. Therefore, the results emanating from this study provide important new directions for theory, research and practice and will hopefully contribute to addressing attrition rates in TAFE settings.
BIBLIOGRAPHY


APPENDICES
Appendix A.1

Original 13-Factor Version of the Self Descriptive Questionnaire –
Form III (Marsh, 1999)
SELF DESCRIPTION QUESTIONNAIRE – III

SDQ III

Surname: ___________________ First Name: ___________________ Circle one: Male Female

Date of Birth (e.g. 11/09/60) ___________________ Today’s Date ___________________

This is a chance for you to consider how you think and feel about yourself. This is not a test – there are no right or wrong answers, and everyone will have different responses. The purpose of this study is to determine how people describe themselves and what characteristics are most important to how people feel about themselves.

On the following pages are a series of statements that are more or less true (or more or less false) descriptions of you. Please use the following eight-point response scale to indicate how true (or false) each item is as a description of you. Respond to the items as you now feel even if you felt differently at some other time in your life. In a few instances, an item may no longer be appropriate to you, though it was at an earlier period of your life (e.g., an item about your present relationship with your parents if they are no longer alive). In such cases, respond to the item as you would have when it was appropriate. Try to avoid leaving any items blank.

After completing all the items, you will be asked to select those that best describe important aspects – either positive or negative – of how you feel about yourself. Consider this as you are completing the survey.

1. Definitely False
2. Mostly False
3. Mostly True
4. More True Than False
5. More False Than True
6. Definitely True

<table>
<thead>
<tr>
<th>ID</th>
<th>Surname</th>
<th>First Name</th>
<th>Sex</th>
<th>DOB</th>
<th>Date</th>
<th>Time</th>
</tr>
</thead>
</table>

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Self-concept Enhancement and Learning Facilitation (SELF) Research Centre, University of Western Sydney.
<table>
<thead>
<tr>
<th></th>
<th>Definitely False</th>
<th></th>
<th>Mostly False</th>
<th>More False Than True</th>
<th></th>
<th>Mostly True</th>
<th></th>
<th>Definitely True</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I find many mathematical problems interesting and challenging.</td>
<td></td>
<td></td>
<td></td>
<td>29</td>
<td>Overall, I am pretty accepting of myself.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>My parents are not very spiritual/religious people.</td>
<td></td>
<td></td>
<td></td>
<td>30</td>
<td>Being honest is not particularly important to me.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Overall, I have a lot of respect for myself.</td>
<td></td>
<td></td>
<td></td>
<td>31</td>
<td>I have lots of friends of the opposite sex.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>I often tell small lies to avoid embarrassing situations.</td>
<td></td>
<td></td>
<td></td>
<td>32</td>
<td>I have a poor vocabulary.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>I get a lot of attention from members of the opposite sex.</td>
<td></td>
<td></td>
<td></td>
<td>33</td>
<td>I am happy most of the time.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>I have trouble expressing myself when trying to write something.</td>
<td></td>
<td></td>
<td></td>
<td>34</td>
<td>I still have many unresolved conflicts with my parents.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>I am usually pretty calm and relaxed.</td>
<td></td>
<td></td>
<td></td>
<td>35</td>
<td>I like most academic subjects.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>I hardly ever saw things the same way as my parents when I was growing up.</td>
<td></td>
<td></td>
<td></td>
<td>36</td>
<td>I wish I had more imagination and originality.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>I enjoy doing work for most academic subjects.</td>
<td></td>
<td></td>
<td></td>
<td>37</td>
<td>I have a good body build.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>I am never able to think up answers to problems that haven’t already been figured out.</td>
<td></td>
<td></td>
<td></td>
<td>38</td>
<td>I don’t get along very well with other members of the same sex.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>I have a physically attractive body.</td>
<td></td>
<td></td>
<td></td>
<td>39</td>
<td>I have good endurance and stamina in sports and physical activities.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>I have few friends of the same sex that I can really count on.</td>
<td></td>
<td></td>
<td></td>
<td>40</td>
<td>Mathematics makes me feel inadequate.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>I am a good athlete.</td>
<td></td>
<td></td>
<td></td>
<td>41</td>
<td>Spiritual/religious beliefs make my life better and make me a happier person.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>I have hesitated to take courses that involve mathematics.</td>
<td></td>
<td></td>
<td></td>
<td>42</td>
<td>Overall, I don’t have much respect for myself.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>I am a spiritual/religious person.</td>
<td></td>
<td></td>
<td></td>
<td>43</td>
<td>I nearly always tell the truth.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Overall, I lack self-confidence.</td>
<td></td>
<td></td>
<td></td>
<td>44</td>
<td>Most of my friends are more comfortable with members of the opposite sex than I am.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>People can always rely on me.</td>
<td></td>
<td></td>
<td></td>
<td>45</td>
<td>I am an avid reader.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>I find it difficult to meet members of the opposite sex whom I like.</td>
<td></td>
<td></td>
<td></td>
<td>46</td>
<td>I am anxious much of the time.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>I can write effectively.</td>
<td></td>
<td></td>
<td></td>
<td>47</td>
<td>My parents have usually been unhappy or disappointed with what I do and have done.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>I worry a lot.</td>
<td></td>
<td></td>
<td></td>
<td>48</td>
<td>I have trouble with most academic subjects.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>I would like to bring up children of my own (if I have any) like my parents raised me.</td>
<td></td>
<td></td>
<td></td>
<td>49</td>
<td>I enjoy working out new ways of solving problems.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>I hate studying for many academic subjects</td>
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<td>50</td>
<td>There are lots of things about the way I look that I would like to change.</td>
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<td>23</td>
<td>I am good at combining ideas in ways that others have not tried.</td>
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<td></td>
<td>51</td>
<td>I make friends easily with members of the same sex.</td>
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<tr>
<td>24</td>
<td>I am ugly.</td>
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<td></td>
<td>52</td>
<td>I hate sports and physical activities.</td>
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<td>25</td>
<td>I am comfortable talking to members of the same sex.</td>
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<td></td>
<td>53</td>
<td>I am quite good at mathematics.</td>
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<td>26</td>
<td>I am awkward and poorly coordinated at many sports and physical activities.</td>
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<td>54</td>
<td>My spiritual/religious beliefs provide the guidelines by which I conduct my life.</td>
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<td>27</td>
<td>I have generally done better in mathematics courses than other courses.</td>
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<td>55</td>
<td>Overall, I have a lot of self confidence.</td>
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<td>28</td>
<td>Spiritual/religious beliefs have little to do with my life philosophy.</td>
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<td>56</td>
<td>I sometimes take things that do not belong to me.</td>
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<td></td>
<td>Definitely False</td>
<td>2</td>
<td>Mostly False</td>
<td>3</td>
<td>More False Than True</td>
<td>4</td>
<td>More True Than False</td>
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<td>57</td>
<td>I am comfortable talking to members of the opposite sex.</td>
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<td>58</td>
<td>I do not do well on tests that require a lot of verbal reasoning ability.</td>
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<td>59</td>
<td>I hardly ever feel depressed.</td>
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<td>60</td>
<td>My values are similar to those of my parents.</td>
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<td>61</td>
<td>I am good at most academic subjects.</td>
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<td>62</td>
<td>I am not much good at problem solving.</td>
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<td>63</td>
<td>My body weight is about right (neither too fat nor too skinny).</td>
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<td>64</td>
<td>Other members of the same sex find me boring.</td>
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<td>65</td>
<td>I have a high energy level in sports and physical activities.</td>
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<td>66</td>
<td>I have trouble understanding anything that is based upon mathematics.</td>
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<td>67</td>
<td>Continuous spiritual/religious growth is important to me.</td>
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<td>68</td>
<td>Overall, I have a very good self-concept.</td>
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<td>69</td>
<td>I never cheat.</td>
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<td>70</td>
<td>I am quite shy with members of the opposite sex.</td>
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<td>71</td>
<td>Relative to most people, my verbal skills are quite good.</td>
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<td>72</td>
<td>I tend to be highly - strung, tense, and restless.</td>
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<td>73</td>
<td>My parents have never had much respect for me.</td>
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<td>74</td>
<td>I am not particularly interested in most academic subjects.</td>
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<td>75</td>
<td>I have a lot of intellectual curiosity.</td>
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<td>76</td>
<td>I dislike the way I look.</td>
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<td>77</td>
<td>I share lots of activities with members of the same sex.</td>
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<td>78</td>
<td>I am not very good at any activities that require physical ability and coordination.</td>
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<td>79</td>
<td>I have always done well in mathematics classes.</td>
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<td>80</td>
<td>I rarely fall asleep in spiritual meditation or religious prayer.</td>
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<td>81</td>
<td>Overall, nothing that I do is very important.</td>
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<td>82</td>
<td>Being dishonest is often the lesser of two evils.</td>
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<td>83</td>
<td>I make friends easily with members of the opposite sex.</td>
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<td>84</td>
<td>I often have to read things several times before I understand them</td>
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<td>85</td>
<td>I do not spend a lot of time worrying about things.</td>
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<td>86</td>
<td>My parents treated me fairly when I was young.</td>
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<td>87</td>
<td>I learn quickly in most academic subjects.</td>
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<td>88</td>
<td>I am not very original in my ideas, thoughts, and actions.</td>
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<td>89</td>
<td>I have nice facial features.</td>
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<td>90</td>
<td>Not many people of the same sex like me.</td>
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<td>91</td>
<td>I like to exercise vigorously at sports and/or physical activities.</td>
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<td>92</td>
<td>I never do well on tests that require mathematical reasoning.</td>
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<tr>
<td>93</td>
<td>I am a better person as a consequence of my spiritual/religious beliefs.</td>
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<tr>
<td>94</td>
<td>Overall, I have pretty positive feelings about myself.</td>
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<tr>
<td>95</td>
<td>I am a very honest person.</td>
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<td>96</td>
<td>I have had lots of feelings of inadequacy about relating to members of the opposite sex.</td>
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<tr>
<td>97</td>
<td>I am good at expressing myself.</td>
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<td>98</td>
<td>I am often depressed.</td>
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<td>99</td>
<td>It has often been difficult for me to talk to my parents.</td>
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<tr>
<td>100</td>
<td>I hate most academic subjects.</td>
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<tr>
<td>101</td>
<td>I am an imaginative person.</td>
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<tr>
<td>102</td>
<td>I wish that I were physically more attractive.</td>
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<tr>
<td>103</td>
<td>I am popular with other members of the same sex.</td>
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<tr>
<td>104</td>
<td>I am poor at most sports and physical activities.</td>
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<tr>
<td>105</td>
<td>At school, my friends always came to me for help in mathematics.</td>
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<td>106</td>
<td>I am basically an atheist, and believe that there is no being higher than man.</td>
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<tr>
<td>107</td>
<td>Overall, I have a very poor self-concept.</td>
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<td>108</td>
<td>I would feel OK about cheating on a test as long as I did not get caught.</td>
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<td>109</td>
<td>I am comfortable being affectionate with members of the opposite sex.</td>
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<td>110</td>
<td>In school I had more trouble learning to read than most other students.</td>
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<td>111</td>
<td>I am inclined towards being an optimist.</td>
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<td>112</td>
<td>My parents understand me.</td>
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<tr>
<td>1 Definitely False</td>
<td>2 False</td>
<td>3 Mostly False</td>
<td>4 More False Than True</td>
<td>5 More True Than False</td>
<td>6 Mostly True</td>
<td>7 True</td>
<td>8 Definitely True</td>
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Different characteristics, both positive and negative, vary in their importance in determining how you feel about yourself. For example, the statement "I am musically talented" may be very inaccurate as a description of you, but it may also be very unimportant about how you feel about yourself. Below are statements about different characteristics. For each statement please judge: 1) how ACCURATE the statement is as a description of you and 2) how IMPORTANT the characteristic is in determining how you feel (either positive or negative) about yourself. Please use the following response scale:

1 Very Inaccurate
2 Inaccurate
3 Unimportant
4 Moderate
5 Average
6 Accurate
7 Important
8 Very Accurate
9 Very Important

**ACCURACY:**
How accurate is this statement about you?

**IMPORTANT:**
How important is the characteristic to you?

- I am good at sports and physical activities.
- I am physically attractive/good looking.
- I have good interactions/relationships with members of the opposite sex.
- I have good interactions/relationships with my parents.
- I am a spiritual/religious person.
- I am an honest/reliable/trustworthy person.
- I have good verbal skills/reasoning ability.
- I have good mathematical skills/reasoning ability.
- I am a good student in most academic subjects.
- I am good at problem solving/creative thinking.
Appendix A.2

Breakdown of the Original 13 Scales of the SDQ III (Marsh, 1999)
Breakdown of the 13 SDQ III Scale Items

Academic Self-concept Scales

Maths

1  I find many mathematical problems interesting and challenging.
2  I have hesitated to take courses that involve mathematics.
3  I have generally done better in mathematics courses than other courses.
4  Mathematics makes me feel inadequate.
5  I am quite good at mathematics.
6  I have trouble understanding anything that is based upon mathematics.
7  I have always done well in mathematics classes.
8  I never do well on tests that require mathematical reasoning.
9  At school, my friends always came to me for help in mathematics.
10 I have never been very excited about mathematics.

Verbal

1  I have trouble expressing myself when trying to write something.
2  I can write effectively.
3  I have a poor vocabulary.
4  I am an avid reader.
5  I do not do well on tests that require a lot of verbal reasoning ability.
6  Relative to most people, my verbal skills are quite good.
7  I often have to read things several times before I understand them.
8  I am good at expressing myself.
9  In school I had more trouble learning to read than most other students.
10 I have good reading comprehension.

Academic

1  I enjoy doing work for most academic subjects.
2  I hate studying for many academic subjects.
3  I like most academic subjects.
4  I have trouble with most academic subjects.
5  I am good at most academic subjects.
6  I am not particularly interested in most academic subjects.
7  I learn quickly in most academic subjects.
8  I hate most academic subjects.
9  I get good marks in most academic subjects.
10 I could never achieve academic honours, even if I worked harder.
Problem Solving

1 I am never able to think up answers to problems that haven’t already been figured out.
2 I am good at combining ideas in ways that others have not tried.
3 I wish I had more imagination and originality.
4 I enjoy working out new ways of solving problems.
5 I am not much good at problem solving.
6 I have a lot of intellectual curiosity.
7 I am not very original in my ideas thoughts and actions.
8 I am an imaginative person.
9 I would have no interest in being an inventor.
10 I can often see better ways of doing routine tasks.

Non-Academic Self-concept

Physical Ability

1 I am a good athlete.
2 I am awkward and poorly coordinated at many sports and physical activities.
3 I have good endurance and stamina in sports and physical activities.
4 I hate sports and physical activities.
5 I have a high energy level in sports and physical activities.
6 I am not very good at any activities that require physical ability and coordination.
7 I like to exercise vigorously at sports and/or physical activities.
8 I am poor at most sports and physical activities.
9 I enjoy sports and physical activities.
10 I am a sedentary type who avoids strenuous activity.

Physical Appearance

1 I have a physically attractive body.
2 I am ugly.
3 I have a good body build.
4 There are lots of things about the way I look that I would like to change.
5 My body weight is about right (neither too fat nor too skinny).
6 I dislike the way I look.
7 I have nice facial features.
8 I wish that I were physically more attractive.
9 Most of my friends are better looking than I am.
10 I am good looking.
Same Sex Peer Relations

1. I have few friends of the same sex that I can really count on.
2. I am comfortable talking to members of the same sex.
3. I don't get along very well with other members of the same sex.
4. I make friends easily with members of the same sex.
5. Other members of the same sex find me boring.
6. I share lots of activities with members of the same sex.
7. Not many people of the same sex like me.
8. I am popular with other members of the same sex.
9. Most people have more friends of the same sex than I do.
10. I have lots of friends of the same sex.

Opposite Sex Peer Relations

1. I get a lot of attention from members of the opposite sex.
2. I find it difficult to meet members of the opposite sex whom I like.
3. I have lots of friends of the opposite sex.
4. Most of my friends are more comfortable with members of the opposite sex than I am.
5. I am comfortable talking to members of the opposite sex.
6. I am quite shy with members of the opposite sex.
7. I make friends easily with members of the opposite sex.
8. I have had lots of feelings of inadequacy about relating to members of the opposite sex.
9. I am comfortable being affectionate with members of the opposite sex.
10. I never seem to have much in common with members of the opposite sex.

Parent Relations

1. I hardly ever saw things the same way as my parents when I was growing up.
2. I would like to bring up children of my own (if I have any) like my parents raised me.
3. I still have many unresolved conflicts with my parents.
4. My parents have usually been unhappy or disappointed with what I do and have done.
5. My values are similar to those of my parents.
6. My parents have never had much respect for me.
7. My parents treated me fairly when I was young.
8. It has often been difficult for me to talk to my parents.
9. My parents understand me.
10. I like my parents.
Spiritual Values/Religion

1. My parents are not very spiritual/religious people.
2. I am a spiritual/religious person.
3. Spiritual/religious beliefs have little to do with my life philosophy.
4. Spiritual/religious beliefs make my life better and make me a happier person.
5. My spiritual/religious beliefs provide the guidelines by which I conduct my life.
6. Continuous spiritual/religious growth is important to me.
7. I rarely if ever spend time in spiritual meditation or religious prayer.
8. I am a better person as a consequence of my spiritual/religious beliefs.
9. I am basically an atheist, and believe that there is no being higher than man.
10. I believe that there will be some form of continuation of my spirit or soul after my death.
11. Spiritual/religious beliefs have little to do with the type of person I want to be.
12. Few, if any of my friends are very spiritual or religious.

Honesty/Trustworthiness

1. I often tell small lies to avoid embarrassing situations.
2. People can always rely on me.
3. Being honest is not particularly important to me.
4. I nearly always tell the truth.
5. I sometimes take things that do not belong to me.
6. I never cheat.
7. Being dishonest is often the lesser of two evils.
8. I am a very honest person.
9. I would feel OK about cheating on a test as long as I did not get caught.
10. I value integrity above all other virtues.
11. I am not a very reliable person.
12. I have never stolen anything of consequence.

Emotional Stability

1. I am usually pretty calm and relaxed.
2. I worry a lot.
3. I am happy most of the time.
4. I am anxious much of the time.
5. I hardly ever feel depressed.
6. I tend to be highly-strung, tense, and restless.
7. I do not spend a lot of time worrying about things.
8. I am often depressed.
9. I am inclined towards being an optimist.
10. I tend to be a very nervous person.
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Appendix A.3
SDQ III Internal Consistency and Self-Other Agreement on Australian and Canadian Data (Marsh, 1989)
### Correlations Between Multiple Facets of Self-Concept and Self-Concepts Inferred by Significant Others for the SDQ-III

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**Note:** Correlations reported without physical proximity, context, or facilitation from March & O'Mahony, 1988, also see SDQRI.
Table 2

Internal Consistency and Self-other Agreement in studies on Australian University Students (N=151; Marsh, Barnes & Hoesoevar, 1985) and Canadian Australian Students (N=94; Marsh & Byrne, 1999).

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NOTE: Internal consistency refers to coefficient alpha estimates of reliability. Self-other agreement in both studies is based on factor scores. All correlations in both studies are statistically significant.
### Table 3

**MTMM Matrix of Correlations Between Self-response Ratings and Combined Ratings By External Observers**

[Adapted from Marsh & Richards, 1987]

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#### Self-Responses to the SQIII External Observer Ratings

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**Note:** Self-response ratings are the mean of T1 and T2 responses. External observer ratings are the mean of "should" and "would" ratings by both external observers. All correlations presented without decimal places greater than .11 are statistically significant (p < .05, two-tailed). See Table 5.1 for variable names.

* indicates convergent validity coefficients.

---

a: The reliability estimates for the mean of T1 and T2 self-rating scales is the test-retest correlation corrected by the Spearman-Brown equation. Test-retest correlations were slightly smaller than coefficient alphas at Time 1 and 2 (see Marsh, Richards & Barnes, 1985a, 1986b), due in part to the interaction, so that this may be a conservative estimate for present purposes. The reliability estimates for the total observer rating is the correlation between the two observer responses (i.e., the convergent validity diagonal of Table 10.3) corrected by the Spearman-Brown equation. This estimate is appropriate for evaluating the convergent validities, but many of the correlations among the observer rating scales "would" be greater than .10 if corrected by these reliability estimates. This is consistent with the earlier observation that there is substantial method/halo effect associated with the responses by each observer.
Table 4


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NOTE: Standard errors of the mean were computed for the raw score totals and the standardized T-scores (see Appendix I).
### TABLE 5.
Factor Analysis Estimates For Parameters for the SD III (N = 2436)

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**Note:**
- **COMM:**
- **Oblique Factor Pattern Matrix After Rotation Variables**

**Variables:**
- **MATH:** Mathematics
- **VERB:** Verbal
- **ACAD:** Academic
- **PHYS:** Physical
- **APPR:** Appraisal
- **SSEX:** Same Sex
- **OSEX:** Opposite Sex
- **PRNT:** Parent
- **RELG:** Religious
- **HON:** Honors
- **EMOT:** Emotional
- **GENR:** Gender
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Note: Coefficients are presented without decimal points. Coefficients which appear in the boxes are the factor pattern matrix are the factor loadings of each variable on the factor it was designed to measure (target loadings). The measured variables are the sum of responses to pairs of items designed to measure the same factor. A total of 13 eigenvalues were greater than 1.0 and a scree test also indicated that 13 factors should be retained.

Math = Math; Verb = Verbal; Acad = Academic; Prob = Problem Solving; Pabl = Physical Ability; Appr = Physical Appearance; Ssex = Same Sex Relationships; Osex = Opposite Sex Relationships; Prnt = Parent Relationships; Relg = Religion/Spiritual Values; Hnst = Honesty; Emot = Emotional Stability; Estm = General Self Esteem.
Appendix B.1

Original Six New (64 Item) Subscales Proposed for the SDQIII-A
PROPOSED SCALES FOR INCLUSION IN THE EXTENDED VERSION OF THE SDQIII-A

PERSONAL EXPECTATIONS

1. GENERAL LIFE

1. I know I will have a long and happy life.
2. I don't expect to live to old age.
3. I always seem to be ill from one thing or another.
4. I have always and will continue to enjoy good health.
5. Everyday is a new and wonderful experience.
6. Everyday seems more or less like an ongoing struggle.
7. I hope to live a full and prosperous life.
8. Life is mostly a difficult existence.
9. I want to live life to the fullest.
10. I take life as it comes.

2. SOCIAL STANDING (Social Self-worth)

1. I look forward to most social functions.
2. I have to force myself to attend social functions.
3. I feel uncomfortable around people from the upper-class.
4. I am able to mix with most people regardless of their social background.
5. I feel comfortable with my present social standing.
6. I strive to change my social status.
7. I am comfortable with my persona in most social situations.
8. Being around people makes me feel anxious.
9. I lead a very active social life.
10. I have a very quiet social life.
11. I like meeting new people.
12. I feel awkward making new acquaintances.
3. TERTIARY RELATIONSHIPS

1. I feel very comfortable with the people in this class.
2. The people in this class make me feel anxious.
3. I enjoy the team spirit in this class.
4. I feel anxious working with other people in this class.
5. I enjoy a close personal bond with the people in this class.
6. Most of the people in this class don't want to know me.
7. The people in this class find me approachable and supportive.
8. People in this class think I am not very approachable.
9. We have a lot of things in common in this class.
10. I have nothing in common with people doing this course.

4. TERTIARY STANDING (Tertiary Self-worth)

1. I pick up things with relative ease in this class.
2. Most of the other students seem more tuned in than me.
3. I feel comfortable with the level of material in this class.
4. Generally, I find it difficult to keep up with the rest of the class.
5. I know I have the ability to get through this course.
6. I feel that everyone else will get through this course and not me.
7. Class members often come to me for help with their studies.
8. I often have to get help with my studies.
9. I find the level of study I have to do in this course is quite comfortable.
10. It seems I have to study much harder than most others in this class.
PROPOSED SCALES FOR INCLUSION IN THE EXTENDED VERSION OF THE SDQIII-A

WORK ENVIRONMENT

5. WORK RELATIONSHIPS

1. I enjoy attending our work's social functions.
2. Social functions for work should be avoided.
3. I keep to myself at work.
4. I like to socialise at work.
5. I like to share my knowledge at work.
6. People at work should develop their own work skills.
7. I like to be included in group discussions at work.
8. I avoid getting involved in group discussions at work.
9. I like people to come to me for advice at work.
10. People at work should find things out for themselves.

6. WORK STANDING (Job Self-worth)

1. I am always receiving praise for my work from superiors.
2. Superiors rarely give me credit for my work.
3. I like to keep myself busy at work.
4. I make sure I have plenty of time to myself at work.
5. I find my work interesting.
6. My work is so mundane.
7. I always look for a better way of doing things in my work.
8. I don't like to change things at work - if it works it will do.
9. Every day at work is a new experience.
10. Every day at work is a struggle.
11. My work is appreciated by my supervisors.
12. Nothing I do at work is ever appreciated by my supervisors.

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Appendix B.2

Final Four (42 Item) Subscales Proposed for the SDQIII-A Long Version
SCALES FOR INCLUSION IN THE LONG VERSION OF THE SDQIII-A

EXTERNAL DOMAIN

INTER-SOCIAL SELF-CONCEPT

1. I look forward to most social functions.
2. I have to force myself to attend social functions.
3. I like meeting new people.
4. I feel awkward making new acquaintances.
5. I enjoy attending our work's social functions.
6. Social functions for work should be avoided.
7. I keep to myself at work.
8. I like to socialise at work.
9. I like to be part of group discussions at work.
10. I avoid getting involved in group discussions at work.

WORK VALUE SELF-CONCEPT

1. I am always receiving praise for my work from superiors.
2. Superiors rarely give me credit for my work.
3. I like to keep myself busy at work.
4. I make sure I have plenty of time to myself at work.
5. I find my work interesting.
6. My work is so mundane.
7. I always look for a better way of doing things in my work.
8. I don't like to change things at work - if it works it will do.
9. Every day at work is a new experience.
10. Every day at work is a struggle.
SCALES FOR INCLUSION IN THE LONG VERSION OF THE SDQIII-A

TERTIARY DOMAIN

TERTIARY SOCIAL

1. I feel very comfortable with the people in this class.
2. The people in this class make me feel anxious.
3. I enjoy the team spirit in this class.
4. I feel anxious working with other people in this class.
5. I enjoy a close personal bond with the people in this class.
6. Most of the people in this class don't want to know me.
7. The people in this class find me approachable and supportive.
8. People in this class think I am not very approachable.
9. We have a lot of things in common in this class.
10. I have nothing in common with people doing this course.

TERTIARY ABILITY

1. I pick up things with relative ease in this class.
2. Most of the other students seem more tuned in than me.
3. I feel comfortable with the level of material in this class.
4. Generally, I find it difficult to keep up with the rest of the class.
5. I know I have the ability to get through this course.
6. I feel that everyone else will get through this course and not me.
7. Class members often come to me for help with their studies.
8. I often have to get help with my studies.
9. I find the level of study I have to do in this course is quite comfortable.
10. It seems I have to study much harder than most others in this class.
Appendix B.3

Final Four (24 Item) Subscales Proposed for the SDQIII-A Short Version
SCALES FOR INCLUSION IN THE SHORT VERSION OF THE SDQIII-A

EXTERNAL DOMAIN

1. INTER-SOCIAL SELF-CONCEPT

This scale examines the perceptions of the student regarding their interpersonal interactions in social and workplace environments. The subscale examines issues of the student’s confidence, comfort and motivation during these interactions.

1. I look forward to most social functions.
2. I have to force myself to attend social functions.
3. I like meeting new people.
4. I feel awkward making new acquaintances.
5. I enjoy interacting with people at work.
6. Social interactions at work should be avoided.

2. WORK VALUE SELF-CONCEPT

This scale examines the perceptions of the student regarding their perceived self-worth in their workplace. The subscale looks at issues of perceived support from the workplace environment, and the students own sentiments regarding purpose and affect about their contribution and commitment to the job.

1. I am always receiving praise for my work from superiors.
2. Superiors rarely give me credit for my work.
3. I like to keep myself busy at work.
4. I make sure I have plenty of time to myself at work.
5. I find my work interesting.
6. My work is so mundane.
SCALES FOR INCLUSION IN THE
SHORT VERSION OF THE
SDQIII-A

TERTIARY DOMAIN

3. TERTIARY SOCIAL

This scale examines the perceptions of the student regarding their personal interactions with other students in the tertiary environment. The scale examines the perceptions of the student regarding being a member of team, their approachability and level of support toward others, together with issues of commonality between the student and class members.

1. I feel very comfortable with the people in this class.
2. The people in this class make me feel anxious.

3. I enjoy the team spirit in this class.
4. I feel anxious working with other people in this class.

5. I enjoy a close personal bond with the people in this class.
6. Most of the people in this class don’t want to know me.

4. TERTIARY ABILITY SELF-CONCEPT

This scale examines the student’s perceptions of self-worth through measures of confidence and competence regarding the program of study they have undertaken. The subscale examines issues such as the student comparing themselves with other students regarding ability, and of support and likelihood of course completion.

1. I pick up things with relative ease in this class.
2. Most of the other students seem more tuned in than me.

3. I feel comfortable with the level of material in this class.
4. Generally, I find it difficult to keep up with the rest of the class.

5. I know I have the ability to get through this course.
6. I feel that everyone else will get through this course and not me.
Appendix C.1

SDQIII-A Long Version for Student Application
SDQ III-A SURVEY
(SELF DESCRIPTIVE QUESTIONNAIRE - FORM A)

Your class has been selected as part of a major study of TAFE students in New South Wales. Although you are one of several thousand students involved in the research, your individual participation is indeed vital to the success of the project. Your involvement is on a voluntary basis, and total confidentiality is assured.

This is not a test - there are no right or wrong answers, and everyone will have different responses. The purpose of this study is to determine how people describe themselves and to explore the types of characteristics that people consider to be most important in their personal evaluation of themselves.

Your responses will be kept strictly confidential and will not be available to anyone other than the researchers directly involved in the study. No questionnaire is analysed individually, and the results of the research will be published in group form only.

Also, the study in no way effects your subject assessment in the classroom. Again, the individual details of participants are kept in strict confidentiality and are not available to teachers, parents etc. Consequently, you are requested to candidly respond to the questions in the survey.

This particular type of research requires that many measurements of the student be made to ensure the validity of the results. We therefore need your name and identification number on this and other surveys so that they can be matched for analysis. Unmatched surveys are of no value to the study.

On the following pages, you will be initially asked to answer a set of questions relating to your personal details. These questions will be followed by 1/28 short statements to which you must respond with a number from the scale that appears at the top of each page. If you have any questions regarding the survey, please do not hesitate to ask the Project Supervisor.

*** THANK YOU FOR YOUR PARTICIPATION ***
SDQ III-A SURVEY
(SELF DESCRIPTIVE QUESTIONNAIRE - FORM A)

NAME: _________________________ ID NO.: _________________________

Before proceeding on to the SDQ III-A, please complete the following questions by placing your response (e.g. the appropriate number etc.) in the box or on the line provided:

A. What will your age be on your next birthday? □

B. What is your sex? 1. Male 2. Female □

C. What is your marital status?
   1. Single
   2. Married/De facto
   3. Divorced/Separated/Widowed. □

D. Your highest level achieved at School?
   1. Higher School Certificate (or equivalent)
   2. School Certificate (or equivalent)
   3. No certificate obtained
   4. Other (specify: _________________________) □

E. What is the number of years you have completed at tertiary institutions (e.g. if this is your first year, put 0)? □

F. What is the number of years you will need to complete the course you are working on now (include the remainder of this year as one year)? □

G. What is the academic department/school to which your course is associated?
   1. Business (e.g. Accounting, Management etc.)
   2. Welfare (including Youth Work, D&A etc.) □
   3. Other (specify: _________________________)

H. What was the social/economic status of your family at the time you were in high school (based upon your parents' education, income and occupation)?
   1. Lower class
   2. Lower-middle class
   3. Middle class
   4. Upper-middle class
   5. Upper class. □
I. The following items pertain to both you and your parents:

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<th>FATHER</th>
<th>MOTHER</th>
<th>YOU</th>
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<tr>
<td>Country of Birth</td>
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<td>Occupation (at the time you were in high school)</td>
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<td>Highest level of education completed:</td>
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1. None
2. Primary
3. Compulsory Secondary (up to age 14/15)
5. Leaving/HSC
6. Tertiary
7. Masters or Ph.D.

********** HOW TO COMPLETE THE SDQ III-A **********

On the following pages are a series of statements that are more or less true (or more or less false) descriptions of you. Please use the following eight-point response scale to indicate how true or how false each item is as a description of you. Write the appropriate number on the short line between the question number and the statement itself.

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<tr>
<td></td>
<td>Definitely False</td>
<td>False</td>
<td>Mostly False</td>
<td>More False Than True</td>
<td>More True Than False</td>
<td>Mostly True</td>
<td>True</td>
<td>Definitely True</td>
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</tbody>
</table>

Respond to the items as you now feel even if you felt differently at some other time in your life. In a few instances, an item may no longer be appropriate to you, though it was at an earlier period of your life (e.g. an item about your present relationship with your parents if they are longer alive etc.). In such cases, respond to the item as you would have when it was appropriate. Try to avoid leaving any items blank.
<p>|   | 1. I find many mathematical problems interesting and challenging. | 2. My parents are not very spiritual/religious people. | 3. Overall, I have a lot of respect for myself. | 4. I often tell small lies to avoid embarrassing situations. | 5. I get a lot of attention from members of the opposite sex. | 6. I have trouble expressing myself when trying to write something. | 7. I am usually pretty calm and relaxed. | 8. I hardly ever saw things the same way as my parents when I was growing up. | 9. I enjoy doing work for most academic subjects. | 10. I am never able to think up answers to problems that haven't already been figured out. | 11. I have a physically attractive body. | 12. I have few friends of the same sex that I can really count on. | 13. I am a good athlete. | 14. I look forward to most social functions. | 15. People at work do not appear to be interested in what I do in my studies. | 16. I enjoy a close personal bond with the people in this course. | 17. I feel that everyone else will get through this course and not me. | 18. I have bestowed to take courses that involve mathematics. | 19. I am a spiritual/religious person. | 20. Overall, I lack self-confidence. | 21. People can always rely on me. | 22. I find it difficult to meet members of the opposite sex whom I like. | 23. I can write effectively. | 24. I worry a lot. | 25. I would like to bring up children of my own (if I have any) like my parents raised me. | 26. I hate studying for many academic subjects. | 27. I am good at combining ideas in ways that others have not tried. | 28. I am ugly. | 29. I am comfortable talking to members of the same sex. | 30. I am awkward and poorly coordinated at most sports and physical activities. | 31. I have to force myself to attend most social functions. | 32. People at work are generally interested to hear about my studies. | 33. A lot of people doing this course don't really want to know me. | 34. I know I have the ability to get through this course. | 35. I have generally done better in mathematics courses than other courses. | 36. Spiritual/religious beliefs have little to do with my life philosophy. | 37. Overall, I am pretty accepting of myself. | 38. Being honest is not particularly important to me. | 39. I have lots of friends of the opposite sex. | 40. I have a poor vocabulary. | 41. I am happy most of the time. | 42. I still have many unresolved conflicts with my parents. | 43. I like most academic subjects. | 44. I wish I had more imagination and originality. | 45. I have a good body build. |</p>
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<th>Definitely False</th>
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<th>More False Than True</th>
<th>More True Than False</th>
<th>Mostly True</th>
<th>True</th>
<th>Definitely True</th>
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<tr>
<td>46</td>
<td>I don’t get along very well with other members of the same sex.</td>
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<td>47</td>
<td>I have good endurance and stamina in sports and physical activities.</td>
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<td>48</td>
<td>My work is appreciated by my supervisors.</td>
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<td>49</td>
<td>I try to avoid getting help from other students with my studies.</td>
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<td>50</td>
<td>I am quite comfortable working on tasks with other students in this course.</td>
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<td>51</td>
<td>I avoid getting involved in group discussions at work.</td>
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<td>52</td>
<td>Mathematics makes me feel inadequate.</td>
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<td>53</td>
<td>Spiritual/religious beliefs make my life better and make me a happier person.</td>
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<td>54</td>
<td>Overall, I don’t have much respect for myself.</td>
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<td>55</td>
<td>I hardly ever tell the truth.</td>
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<td>56</td>
<td>Most of my friends are more comfortable with members of the opposite sex than I am.</td>
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<td>57</td>
<td>I am an avid reader.</td>
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<td>58</td>
<td>I am cautious most of the time.</td>
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<td>59</td>
<td>My parents have usually been unhappy or disappointed with what I do and have done.</td>
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<td>60</td>
<td>I have trouble with most academic subjects.</td>
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<td>61</td>
<td>I enjoy working out new ways of solving problems.</td>
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<td>62</td>
<td>There are lots of things about the way I look that I would like to change.</td>
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<td>63</td>
<td>I make friends easily with members of the same sex.</td>
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<td>64</td>
<td>I hate sports and physical activities.</td>
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<td>65</td>
<td>My superiors rarely give me credit for what I do at work.</td>
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<td>66</td>
<td>I like to think that I can get help with my studies from others doing this course.</td>
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<td>67</td>
<td>Having to work with other students in this course tends to make me feel anxious.</td>
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<td>68</td>
<td>I like to be part of group discussions at work.</td>
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<td>69</td>
<td>I am quite good at mathematics.</td>
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<td>70</td>
<td>My spiritual/religious beliefs provide the guidelines by which I conduct my life.</td>
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<td>71</td>
<td>Overall, I have a lot of self-confidence.</td>
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<td>72</td>
<td>I sometimes take things that do not belong to me.</td>
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<td>73</td>
<td>I am comfortable talking to members of the opposite sex.</td>
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<td>74</td>
<td>I do not do well on tests that require a lot of verbal reasoning ability.</td>
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<td>75</td>
<td>I hardly ever feel depressed.</td>
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<td>76</td>
<td>My values are similar to those of my parents.</td>
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<td>77</td>
<td>I’m good at most academic subjects.</td>
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<td>78</td>
<td>I’m not much good at problem solving.</td>
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<td>79</td>
<td>My body weight is about right (neither too fat nor too skinny).</td>
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<td>80</td>
<td>Other members of the same sex find me boring.</td>
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<td>81</td>
<td>I have a high energy level in sports and physical activities.</td>
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<td>82</td>
<td>I feel very comfortable with the people in this course.</td>
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<td>83</td>
<td>Generally, I find it difficult to keep up with other students doing this course.</td>
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<td>84</td>
<td>I like to socialise at work.</td>
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<td>85</td>
<td>My work is mostly monotonous.</td>
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<td>86</td>
<td>I have trouble understanding anything that is based upon mathematics.</td>
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<td>87</td>
<td>Continuous spiritual/religious growth is important to me.</td>
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<td>88</td>
<td>Overall, I have a very good self-concept.</td>
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<td>89</td>
<td>I never cheat.</td>
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<td>90</td>
<td>I’m quite shy with members of the opposite sex.</td>
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</table>
91. Relative to most people, my verbal skills are quite good.

92. I tend to be high-strung, tense, and restless.

93. My parents have never had much respect for me.

94. I'm not particularly interested in most academic subjects.

95. I have a lot of intellectual curiosity.

96. I dislike the way I look.

97. I share lots of activities with members of the same sex.

98. I'm not very good at activities that require physical ability and coordination.

99. Generally speaking, I feel uncomfortable with the people in this course.

100. I feel comfortable with the level of material covered in this course.

101. I keep to myself at work.

102. I find my work interesting.

103. I have always done well in mathematics classes.

104. I rarely if ever spend time in spiritual meditation or religious prayer.

105. Overall, nothing that I do is very important.

106. Being dishonest is often the lesser of two evils.

107. I make friends easily with members of the opposite sex.

108. I often have to read things several times before I understand them.

109. I do not spend a lot of time worrying about things.

110. My parents treated me fairly when I was young.

111. I learn quickly in most academic subjects.

112. I am not very original in my ideas, thoughts, and actions.

113. I have nice facial features.

114. Not many people of the same sex like me.

115. I like to exercise vigorously at sports, and/or physical activities.

116. I find that I can take on the material covered in this course with relative ease.

117. Social functions for work should be avoided.

118. I often find it helpful to talk to co-workers about my studies.

119. I have nothing in common with the people doing this course.

120. I never do well on tests that require mathematical reasoning.

121. I am a better person as a consequence of my spiritual/religious beliefs.

122. Overall, I have pretty positive feelings about myself.

123. I am a very honest person.

124. I have had lots of feelings of inadequacy about relating to members of the opposite sex.

125. I am good at expressing myself.

126. I am often depressed.

127. It has often been difficult for me to talk to my parents.

128. I hate most academic subjects.

129. I am an imaginative person.

130. I wish that I were physically more attractive.

131. I am popular with other members of the same sex.

132. I am poor at most sports and physical activities.

133. Most of the other students doing this course seem more talkative than me.
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<th>Definitely False</th>
<th>False</th>
<th>Mostly False</th>
<th>More False Than True</th>
<th>More True Than False</th>
<th>Mostly True</th>
<th>True</th>
<th>Definitely True</th>
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<tr>
<td>134</td>
<td>I enjoy attending our work's social functions.</td>
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<td>135</td>
<td>The people I work with provide little in the way of encouragement for me in my studies.</td>
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<td>136</td>
<td>The people doing this course and I have a lot of things in common.</td>
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<td>137</td>
<td>At school, my friends always came to me for help in mathematics.</td>
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<td>138</td>
<td>I am basically an atheist, and believe that there is no being higher than man.</td>
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<td>139</td>
<td>Overall, I have a very poor self-concept.</td>
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<td>140</td>
<td>I would feel okay about cheating on a test as long as I did not get caught.</td>
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<td>141</td>
<td>I am comfortable being affectionate with members of the opposite sex.</td>
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<td>142</td>
<td>In school I had more trouble learning to read than most other students.</td>
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<td>143</td>
<td>I am inclined towards being an optimist.</td>
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<td>144</td>
<td>My parents understand me.</td>
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<td>145</td>
<td>I get good marks in most academic subjects.</td>
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<td>146</td>
<td>I would have no interest in being an inventor.</td>
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<td>147</td>
<td>Most of my friends are better looking than I am.</td>
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<td>148</td>
<td>Most people have more friends of the same sex than I do.</td>
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<td>149</td>
<td>I enjoy sports and physical activities.</td>
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<td>150</td>
<td>I like meeting new people.</td>
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<td>151</td>
<td>There are very few things about my work that I enjoy.</td>
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<td>152</td>
<td>The students doing this course find me to be approachable and supportive.</td>
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<td>153</td>
<td>It seems I have to study much harder than most other students doing this course.</td>
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<td>154</td>
<td>Everyday at work is a new experience.</td>
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<td>155</td>
<td>I have never been very excited about mathematics.</td>
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<td>156</td>
<td>I believe that there will be some form of continuation of my spirit or soul after my death.</td>
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<td>157</td>
<td>Overall, I have pretty negative feelings about myself.</td>
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<td>158</td>
<td>I value integrity above all other virtues.</td>
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<td>159</td>
<td>I never seem to have much in common with members of the opposite sex.</td>
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<td>160</td>
<td>I have good reading comprehension.</td>
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<td>161</td>
<td>I tend to be a very nervous person.</td>
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<td>162</td>
<td>I like my parents.</td>
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<td>163</td>
<td>I could never achieve academic honours, even if I worked harder.</td>
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<td>164</td>
<td>I can often see better ways of doing routine tasks.</td>
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<td>165</td>
<td>I am good looking.</td>
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<td>166</td>
<td>I have lots of friends of the same sex.</td>
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<td>167</td>
<td>I am a sedentary type who avoids strenuous activity.</td>
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<td>168</td>
<td>Overall, I do lots of things that are important.</td>
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<td>169</td>
<td>I am not a very reliable person.</td>
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<td>170</td>
<td>Spiritual/religious beliefs have little to do with the type of person I want to be.</td>
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<td>171</td>
<td>I have never stolen anything of consequence.</td>
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<td>172</td>
<td>Overall, I am not very accepting of myself.</td>
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<td>173</td>
<td>Few if any of my friends are very spiritual or religious.</td>
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<td>174</td>
<td>I feel awkward making new acquaintances.</td>
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<td>175</td>
<td>I consider my work to be enjoyable.</td>
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<td>176</td>
<td>The students doing this course think that I am not very approachable.</td>
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<td>177</td>
<td>I find the level of study I have to do in this course is quite comfortable.</td>
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<td>178</td>
<td>There is very little variation in my daily work routine.</td>
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Appendix C.2

SDQIII-A Long Version for Significant Other Application
TO BE COMPLETED BY THE
SIGNIFICANT OTHER PERSON

NAME: ______________________ ID No.: ______________

SDQ III-A SURVEY
(SELF DESCRIPTIVE QUESTIONNAIRE - FORM A)

The person who gave you this questionnaire to complete has been selected as part of a major study of TAFE students in New South Wales. You are one of several thousand people involved in the research, and like the person who gave you this questionnaire, your individual participation is indeed vital to the project. Your involvement is on a voluntary basis, and total confidentiality is assured.

This is not a test - there are no right or wrong answers. The study investigates how people describe themselves, and how accurately their thoughts and feelings can be assessed by another person who knows them very well (this is you). Your task is to try to imagine that you are the person who gave you this survey and to complete the items on the following pages as he/she would do. When you have completed the survey, place it in the envelope provided (making sure to seal it and then sign your name across the seal), and return it to the person who gave it to you. They in turn will bring it back to the College for collection.

Your responses will be kept strictly confidential and not shown to anyone not connected with this project, and of course, never shown nor discussed with the person who gave this survey to you. Consequently, we are asking you to be candid in making your responses.

Please ensure that the questionnaire is returned to the College, for if the study is to be successful, it is essential that students' surveys be matched with the relevant "Significant Other" person's questionnaires. Simply put, unmatched surveys are of no value to the project.

Before proceeding on to the SDQ III-A, please complete the following questions about yourself (not the person who gave you the questionnaire) by placing your response (e.g. the appropriate number etc.) in the box or on the line provided:

A. What will your age be on your next birthday? ____________

B. What is your sex? 1. Male 2. Female ____________

C. Indicate (in years) how long you have known this person? ____________
D. Which of the following situations best describes your relationship with the person who gave you this survey?

1. Casual friend
2. Friend
3. Good friend
4. Spouse
5. Boyfriend/Girlfriend
6. Parent
7. Brother/Sister
8. Other (specify: ____________________)

D. Please indicate how well you know this person?

1. Not very well
2. Reasonably well
3. Quite well
4. Extremely well
5. Better than anyone else

E. To what degree do you feel you should (or will) support the person who gave you this survey, in their studies?

************ HOW TO COMPLETE THE SDQ III-A ************

On the following pages are a series of statements that are more or less true (or more or less false) descriptions about the person who gave you this survey. Each question is worded in the first person since you are imagining yourself to be that person. Please use the following eight-point response scale to indicate how true or how false each item is as a description of you (that is, the person who gave you the survey). Write the appropriate number on the short line between the question number and the statement itself.

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<tbody>
<tr>
<td>Definitely False</td>
<td>False</td>
<td>Mostly False</td>
<td>More False Than True</td>
<td>More True Than False</td>
<td>Mostly True</td>
<td>True</td>
<td>Definitely True</td>
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</table>

Respond to the items as you now feel even if you felt differently at some other time in your life. In a few instances, an item may no longer be appropriate to you, though it was at an earlier period of your life (e.g. an item about your present relationship with your parents if they are longer alive etc.). In such cases, respond to the item as you would have when it was appropriate. Try to avoid leaving any items blank.

*** THANK YOU FOR YOUR PARTICIPATION ***
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1. I find many mathematical problems interesting and challenging.
2. My parents are not very spiritual/religious people.
3. Overall, I have a lot of respect for myself.
4. I often tell small lies to avoid embarrassing situations.
5. I get a lot of attention from members of the opposite sex.
6. I have trouble expressing myself when trying to write something.
7. I am usually pretty calm and relaxed.
8. I hardly ever saw things the same way as my parents when I was growing up.
9. I enjoy doing work for most academic subjects.
10. I am never able to think up answers to problems that haven't already been figured out.
11. I have a physically attractive body.
12. I have few friends of the same sex that I can really count on.
13. I am a good athlete.
14. I look forward to most social functions.
15. People at work do not appear to be interested in what I do in my studies.
16. I enjoy a close personal bond with the people in this course.
17. I feel that everyone else will get through this course and not me.
18. I have not studied to take courses that involve mathematics.
19. I am a spiritual/religious person.
20. Overall, I lack self-confidence.
21. People can always rely on me.
22. I find it difficult to meet members of the opposite sex when I like.
23. I can write effectively.
24. I worry a lot.
25. I would like to bring up children of my own (if I have any) like my parents raised me.
26. I hate studying for many academic subjects.
27. I am good at combining ideas in ways that others have not tried.
28. I am ugly.
29. I am comfortable talking to members of the same sex.
30. I am an awkward and poorly coordinated at sports and physical activities.
31. I have to force myself to attend most social functions.
32. People at work are generally interested to hear about my studies.
33. A lot of people doing this course don't really want to know me.
34. I know I have the ability to get through this course.
35. I have generally done better in mathematics courses than other courses.
36. Spiritual/religious beliefs have little to do with my life philosophy.
37. Overall, I am pretty accepting of myself.
38. Being honest is not particularly important to me.
39. I have lots of friends of the opposite sex.
40. I have a poor vocabulary.
41. I am happy most of the time.
42. I still have many unresolved conflicts with my parents.
43. I like most academic subjects.
44. I wish I had more imagination and originality.
45. I have a good body build.
46. ___ I don't get along very well with other members of the same sex.

47. ___ I have good endurance and stamina in sports and physical activities.

48. ___ My work is appreciated by my supervisors.

49. ___ I try to avoid getting help from other students with my studies.

50. ___ I am quite comfortable working on tasks with other students in this course.

51. ___ I avoid getting involved in group discussions at work.

52. ___ Mathematics makes me feel inadequate.

53. ___ Spiritual/religious beliefs make my life better and make me a happier person.

54. ___ Overall, I don't have much respect for myself.

55. ___ I nearly always tell the truth.

56. ___ Most of my friends are more comfortable with members of the opposite sex than I am.

57. ___ I am an avid reader.

58. ___ I am anxious much of the time.

59. ___ My parents have usually been unhappy or disappointed with what I do and have done.

60. ___ I have trouble with most academic subjects.

61. ___ I enjoy working out new ways of solving problems.

62. ___ There are lots of things about the way I look that I would like to change.

63. ___ I make friends easily with members of the same sex.

64. ___ I hate sports and physical activities.

65. ___ My superior rarely gives me credit for what I do at work.

66. ___ I like to think that I can get help with my studies from others doing this course.

67. ___ Having to work with other students in this course tends to make me feel anxious.

68. ___ I like to be part of group discussions at work.

69. ___ I am quite good at mathematics.

70. ___ My spiritual/religious beliefs provide the guidelines by which I conduct my life.

71. ___ Overall, I have a lot of self-confidence.

72. ___ I sometimes take things that do not belong to me.

73. ___ I am comfortable talking to members of the opposite sex.

74. ___ I do not do well on tests that require a lot of verbal reasoning ability.

75. ___ I hardly ever feel depressed.

76. ___ My values are similar to those of my parents.

77. ___ I'm good at most academic subjects.

78. ___ I'm not much good at problem solving.

79. ___ My body weight is about right (neither too fat nor too skinny).

80. ___ Other members of the same sex find me boring.

81. ___ I have a high energy level in sports and physical activities.

82. ___ I feel very comfortable with the people in this course.

83. ___ Generally, I find it difficult to keep up with other students doing this course.

84. ___ I like to socialize at work.

85. ___ My work is mostly mundane.

86. ___ I have trouble understanding anything that is based upon mathematics.

87. ___ Continuous spiritual/religious growth is important to me.

88. ___ Overall, I have a very good self-concept.

89. ___ I never cheat.

90. ___ I'm quite shy with members of the opposite sex.
<table>
<thead>
<tr>
<th></th>
<th>Definitely False</th>
<th>False</th>
<th>Mostly False</th>
<th>More False Than True</th>
<th>More True Than False</th>
<th>Mostly True</th>
<th>True</th>
<th>Definitely True</th>
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</thead>
<tbody>
<tr>
<td>91.</td>
<td>Relative to most people, my verbal skills are quite good.</td>
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<td>92.</td>
<td>I tend to be high-strung, tense, and restless.</td>
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<td>93.</td>
<td>My parents have never had much respect for me.</td>
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<td>94.</td>
<td>I'm not particularly interested in most academic subjects.</td>
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<td>95.</td>
<td>I have a lot of intellectual curiosity.</td>
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<td>96.</td>
<td>I dislike the way I look.</td>
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<td>97.</td>
<td>I share lots of activities with members of the same sex.</td>
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<td>98.</td>
<td>I'm not very good at activities that require physical ability and coordination.</td>
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<td>99.</td>
<td>Generally speaking, I feel uncomfortable with people in this course.</td>
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<td>100.</td>
<td>I feel comfortable with the level of material covered in this course.</td>
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<td>101.</td>
<td>I keep to myself at work.</td>
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<td>102.</td>
<td>I find my work interesting.</td>
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<td>103.</td>
<td>I have always done well in mathematics classes.</td>
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<td>104.</td>
<td>I rarely if ever spend time in spiritual meditation or religious prayer.</td>
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<td>105.</td>
<td>Overall, nothing that I do is very important.</td>
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<td>106.</td>
<td>Being dishonest is often the lesser of two evils.</td>
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<td>107.</td>
<td>I make friends easily with members of the opposite sex.</td>
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<td>108.</td>
<td>I often have to read things several times before I understand them.</td>
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<td>109.</td>
<td>I do not spend a lot of time worrying about things.</td>
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<td>110.</td>
<td>My parents treated me fairly when I was young.</td>
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<td>111.</td>
<td>I learn quickly in most academic subjects.</td>
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<td>112.</td>
<td>I am not very original in my ideas, thoughts, and actions.</td>
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<td>113.</td>
<td>I have nice facial features.</td>
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<td>114.</td>
<td>Not many people of the same sex like me.</td>
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<td>115.</td>
<td>I like to exercise vigorously at sports and/or physical activities.</td>
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<td>116.</td>
<td>I feel that I can take on the material covered in this course with relative ease.</td>
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<td>117.</td>
<td>Social functions for work should be avoided.</td>
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<td>118.</td>
<td>I often find it helpful to talk to co-workers about my studies.</td>
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<td>119.</td>
<td>I have nothing in common with the people doing this course.</td>
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<td>120.</td>
<td>I never do well on tests that require mathematical reasoning.</td>
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<td>121.</td>
<td>I am a better person as a consequence of my spiritual/religious beliefs.</td>
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<td>122.</td>
<td>Overall, I have pretty positive feelings about myself.</td>
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<td>123.</td>
<td>I am a very honest person.</td>
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<td>124.</td>
<td>I have had lots of feelings of inadequacy about relating to members of the opposite sex.</td>
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<td>125.</td>
<td>I am good at expressing myself.</td>
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<td>126.</td>
<td>I am often depressed.</td>
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<td>127.</td>
<td>It has often been difficult for me to talk to my parents.</td>
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<td>128.</td>
<td>I hate most academic subjects.</td>
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<td>129.</td>
<td>I am an imaginative person.</td>
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<td>130.</td>
<td>I wish that I were physically more attractive.</td>
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<td>131.</td>
<td>I am popular with other members of the same sex.</td>
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<td>132.</td>
<td>I am poor at most sports and physical activities.</td>
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<td>133.</td>
<td>Most of the other students doing this course seem more toned-in than me.</td>
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<td>Definitely True</td>
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<td>Mostly True</td>
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<td>More False</td>
<td>True</td>
<td>Mostly False</td>
<td>Definitely False</td>
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<td>134.</td>
<td>I enjoy attending our work's social functions.</td>
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<td>135.</td>
<td>The people I work with provide little encouragement for me in my studies.</td>
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<td>136.</td>
<td>The people doing this course and I have a lot of things in common.</td>
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<td>137.</td>
<td>At school, my friends always came to me for help in mathematics.</td>
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<td>138.</td>
<td>I am basically an atheist, and believe that there is no being higher than man.</td>
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<td>139.</td>
<td>Overall, I have a very poor self-concept.</td>
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<td>140.</td>
<td>I would feel okay about cheating on a test as long as I did not get caught.</td>
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<td>141.</td>
<td>I am comfortable being affectionate with members of the opposite sex.</td>
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<td>142.</td>
<td>In school I had more trouble learning to read than most other students.</td>
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<td>143.</td>
<td>I am inclined towards being an optimist.</td>
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<td>144.</td>
<td>My parents understand me.</td>
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<td>145.</td>
<td>I get good marks in most academic subjects.</td>
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<td>146.</td>
<td>I would have no interest in being an inventor.</td>
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<td>147.</td>
<td>Most of my friends are better looking than I am.</td>
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<td>148.</td>
<td>Most people have more friends of the same sex than I do.</td>
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<td>149.</td>
<td>I enjoy sports and physical activities.</td>
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<td>150.</td>
<td>I like meeting new people.</td>
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<td>151.</td>
<td>There are very few things about my work that I enjoy.</td>
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<td>152.</td>
<td>The students doing this course find me to be approachable and supportive.</td>
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<td>153.</td>
<td>It seems I have to study much harder than most other students doing this course.</td>
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<td>154.</td>
<td>Everyday at work is a new experience.</td>
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<td>155.</td>
<td>I have never been very excited about mathematics.</td>
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<td>156.</td>
<td>I believe that there will be some form of continuation of my spirit or soul after my death.</td>
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<td>157.</td>
<td>Overall, I have very negative feelings about myself.</td>
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<td>158.</td>
<td>I value integrity above all other virtues.</td>
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<td>159.</td>
<td>I never seem to have much in common with members of the opposite sex.</td>
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<td>160.</td>
<td>I have good reading comprehension.</td>
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<td>161.</td>
<td>I tend to be a very nervous person.</td>
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<td>162.</td>
<td>I like my parents.</td>
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<td>163.</td>
<td>I could never achieve academic honours, even if I worked harder.</td>
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<td>164.</td>
<td>I can often see better ways of doing routine tasks.</td>
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<td>165.</td>
<td>I am good looking.</td>
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<td>166.</td>
<td>I have lots of friends of the same sex.</td>
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<td>167.</td>
<td>I am a sedentary type who avoids stressful activity.</td>
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<td>168.</td>
<td>Overall, I do lots of things that are important.</td>
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<td>169.</td>
<td>I am not a very reliable person.</td>
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<td>170.</td>
<td>Spiritual/religious beliefs have little to do with the type of person I want to be.</td>
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<td>171.</td>
<td>I have never stolen anything of consequence.</td>
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<td>172.</td>
<td>Overall, I am not very accepting of myself.</td>
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<td>173.</td>
<td>Few if any of my friends are very spiritual or religious.</td>
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<td>174.</td>
<td>I feel awkward making new acquaintances.</td>
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<td>175.</td>
<td>I consider my work to be enjoyable.</td>
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<td>176.</td>
<td>The students doing this course think that I am not very approachable.</td>
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<td>177.</td>
<td>I find the level of study I have to do in this course is quite comfortable.</td>
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<tr>
<td>178.</td>
<td>There is very little variation in my daily work routine.</td>
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</table>
Appendix C.3

SDQIII-A Short Version for Student Application
Your class has been selected as part of a major study of TAFE students in New South Wales. Although you are one of several thousand students involved in the research, your individual participation is indeed vital to the success of the project. Your involvement is on a voluntary basis, and total confidentiality is assured.

This is not a test - there are no right or wrong answers, and everyone will have different responses. The purpose of this study is to determine how people describe themselves and to explore the types of characteristics that people consider to be most important in their personal evaluation of themselves.

Your responses will be kept strictly confidential and will not be available to anyone other than the researchers directly involved in the study. No questionnaire is analysed individually, and the results of the research will be published in group form only.

Also, the study in no way affects your subject assessment in the classroom. Again, the individual details of participants are kept in strict confidentiality and are not available to teachers, parents etc. Consequently, you are requested to candidly respond to the questions in the survey.

This particular type of research requires that many measurements of the student be made to ensure the validity of the results. We therefore need your name and identification number on this and other surveys so that they can be matched for analysis. Unmatched surveys are of no value to the study.

On the following pages, you will be initially asked to answer a set of questions relating to your personal details. These questions will be followed by 102 short statements to which you must respond with a number from the scale that appears at the top of each page. If you have any questions regarding the survey, please do not hesitate to ask the Project Supervisor.

*** THANK YOU FOR YOUR PARTICIPATION ***
SDQ III-A SURVEY
(SELF DESCRIPTIVE QUESTIONNAIRE - FORM A)

NAME: ______________________  ID NO.: ______________________

Before proceeding on to the SDQ III-A, please complete the following questions by placing your response (e.g. the appropriate number etc.) in the box or on the line provided:

A. What will your age be on your next birthday? __________

B. What is your sex?  1. Male  2. Female __________

C. What is your marital status?
1. Single
2. Married/De facto
3. Divorced/Separated/Widowed. __________

D. Your highest level achieved at School?
1. Higher School Certificate (or equivalent)
2. School Certificate (or equivalent)
3. No certificate obtained
4. Other (specify:________________________) __________

E. What is the number of years you have completed at tertiary institutions (e.g. if this is your first year, put 0)? __________

F. What is the number of years you will need to complete the course you are working on now (include the remainder of this year as 1)? __________

G. What is the academic department/school to which your course is associated?
1. Business (e.g. Accounting, Management etc.)
2. Welfare (including Youth Work, D&A etc.)
3. Other (specify:________________________) __________

H. What was the social/economic status of your family at the time you were in high school (based upon your parents’ education, income and occupation)?
1. Lower class
2. Lower-middle class
3. Middle class
4. Upper-middle class
5. Upper class. __________
I. The following items pertain to both you and your parents:

<table>
<thead>
<tr>
<th></th>
<th>FATHER</th>
<th>MOTHER</th>
<th>YOU</th>
</tr>
</thead>
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<tr>
<td>Country of Birth</td>
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<tr>
<td>Occupation (at the time you were in high school)</td>
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<tr>
<td>Highest level of education completed:</td>
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<td></td>
</tr>
<tr>
<td>1. None</td>
<td></td>
<td></td>
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<tr>
<td>2. Primary</td>
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<td></td>
<td></td>
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<tr>
<td>3. Compulsory Secondary (up to age 14/15)</td>
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<tr>
<td>5. Leaving/HSC</td>
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<tr>
<td>6. Tertiary</td>
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<td></td>
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<tr>
<td>7. Masters or Ph.D.</td>
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</tbody>
</table>

************ HOW TO COMPLETE THE SDQ III-A ************

On the following pages are a series of statements that are more or less true (or more or less false) descriptions of you. Please use the following eight-point response scale to indicate how true or how false each item is as a description of you. Write the appropriate number on the short line between the question number and the statement itself.

1 2 3 4 5 6 7 8

* - DEFINITELY FALSE  * - MOSTLY FALSE  * - MORE FALSE  * - FALSE
   * - MORE TRUE    * - TRUE    * - MOSTLY TRUE  * - DEFINITELY TRUE

Respond to the items as you now feel even if you felt differently at some other time in your life. In a few instances, an item may no longer be appropriate to you, though it was at an earlier period of your life (e.g. an item about your present relationship with parents if they are no longer alive etc.). In such cases, respond to the item as you would have when it was appropriate. Try to avoid leaving any items blank.
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<td></td>
<td>DEFINITELY FALSE</td>
<td>MOSTLY FALSE</td>
<td>MORE FALSE</td>
<td>THAN</td>
<td>TRUE</td>
<td>MOSTLY TRUE</td>
<td>DEFINITELY TRUE</td>
<td></td>
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<td>FALSE</td>
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<td>FALSE</td>
<td>FALSE</td>
<td>FALSE</td>
<td>TRUE</td>
<td></td>
</tr>
</tbody>
</table>

1. ______ Overall, I have a lot of respect for myself.
2. ______ I often tell small lies to avoid embarrassing situations.
3. ______ I have trouble expressing myself when trying to write something.
4. ______ I am usually pretty calm and relaxed.
5. ______ I enjoy doing work for most academic subjects.
6. ______ I am never able to think up answers to problems that haven’t already been figured out.
7. ______ I have a physically attractive body.
8. ______ I look forward to most social functions.
9. ______ People at work do not appear to be interested in what I do in my studies.
10. ______ Overall, I lack self-confidence.
11. ______ People can always rely on me.
12. ______ I can write effectively.
13. ______ I worry a lot.
14. ______ I hate studying for many academic subjects.
15. ______ I am good at combining ideas in ways that others have not tried.
16. ______ I am ugly.
17. ______ I have to force myself to attend most social functions.
18. ______ People at work are generally interested to hear about my studies.
19. ______ I know I have the ability to get through this course.
20. ______ I have generally done better in mathematics courses than other courses.
21. ______ Spiritual/religious beliefs have little to do with my life philosophy.
22. ______ Overall, I am pretty accepting of myself.
23. ______ I enjoy a close personal bond with the people in this course.
24. ______ I feel that everyone else will get through this course and not me.
25. ______ I have lots of friends of the opposite sex.
26. ______ I have a poor vocabulary.
27. ______ I like most academic subjects.
28. ______ I wish I had more imagination and originality.
29. ______ I have a good body build.
30. ______ I don’t get along very well with other members of the same sex.
31. ______ I have good endurance and stamina in sports and physical activities.
32. ______ I find the team spirit generated by this course to be very satisfying.
33. ______ Mathematics makes me feel inadequate.
34. ______ Spiritual/religious beliefs make my life better and make me a happier person.
35. ______ Overall, I don’t have much respect for myself.
36. ______ Most of my friends are more comfortable with members of the opposite sex than I am.
37. ______ I am an avid reader.
38. ______ I have trouble with most academic subjects.
39. ______ I enjoy working out new ways of solving problems.
40. ______ There are lots of things about the way I look that I would like to change.
41. ______ I make friends easily with members of the same sex.
42. ______ I hate sports and physical activities.
43. ______ I feel very comfortable with the people in this course.
44. ______ Generally, I find it difficult to keep up with other students doing this course.
45. ______ I am quite good at mathematics.
46. ______ My spiritual/religious beliefs provide the guidelines by which I conduct my life.
47. ______ I sometimes take things that do not belong to me.
48. ______ I am comfortable talking to members of the opposite sex.
49. ______ I tend to be high-strung, tense and restless.
50. ______ My values are similar to those of my parents.
51. ______ I am good at most academic subjects.
52. ______ Other members of the same sex find me boring.
<table>
<thead>
<tr>
<th>Question</th>
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<tr>
<td>I have a high energy level in sports and physical activities.</td>
<td></td>
</tr>
<tr>
<td>I like to socialise at work.</td>
<td></td>
</tr>
<tr>
<td>My work is mostly mundane.</td>
<td></td>
</tr>
<tr>
<td>I have trouble understanding anything that is based upon mathematics.</td>
<td></td>
</tr>
<tr>
<td>Continuous spiritual/religious growth is important to me.</td>
<td></td>
</tr>
<tr>
<td>I never cheat.</td>
<td></td>
</tr>
<tr>
<td>I'm quite shy with members of the opposite sex.</td>
<td></td>
</tr>
<tr>
<td>I do not spend a lot of time worrying about things.</td>
<td></td>
</tr>
<tr>
<td>My parents have never had much respect for me.</td>
<td></td>
</tr>
<tr>
<td>I'm not particularly interested in most academic subjects.</td>
<td></td>
</tr>
<tr>
<td>I share lots of activities with members of the same sex.</td>
<td></td>
</tr>
<tr>
<td>I'm not very good at activities that require physical ability and coordination.</td>
<td></td>
</tr>
<tr>
<td>I find my work interesting.</td>
<td></td>
</tr>
<tr>
<td>I have always done well in mathematics classes.</td>
<td></td>
</tr>
<tr>
<td>I rarely ever spend time in spiritual meditation or religious prayer.</td>
<td></td>
</tr>
<tr>
<td>Being dishonest is often the lesser of two evils.</td>
<td></td>
</tr>
<tr>
<td>I make friends easily with members of the opposite sex.</td>
<td></td>
</tr>
<tr>
<td>I am often depressed.</td>
<td></td>
</tr>
<tr>
<td>My parents treated me fairly when I was young.</td>
<td></td>
</tr>
<tr>
<td>I am not very original in my ideas, thoughts, and actions.</td>
<td></td>
</tr>
<tr>
<td>I like to exercise vigorously at sports and/or physical activities.</td>
<td></td>
</tr>
<tr>
<td>I find that I can take on the material covered in this course with relative ease.</td>
<td></td>
</tr>
<tr>
<td>I have nothing in common with the people doing this course.</td>
<td></td>
</tr>
<tr>
<td>I never do well on tests that require mathematical reasoning.</td>
<td></td>
</tr>
<tr>
<td>I am a better person as a consequence of my spiritual/religious beliefs.</td>
<td></td>
</tr>
<tr>
<td>I am a very honest person.</td>
<td></td>
</tr>
<tr>
<td>I have had lots of feelings of inadequacy about relating to members of the opposite sex.</td>
<td></td>
</tr>
<tr>
<td>I hardly ever feel depressed.</td>
<td></td>
</tr>
<tr>
<td>It has often been difficult for me to talk to my parents.</td>
<td></td>
</tr>
<tr>
<td>I am an imaginative person.</td>
<td></td>
</tr>
<tr>
<td>I am poor at most sports and physical activities.</td>
<td></td>
</tr>
<tr>
<td>Most of the other students doing this course seem more tuned-in than me.</td>
<td></td>
</tr>
<tr>
<td>I enjoy attending our work's social functions.</td>
<td></td>
</tr>
<tr>
<td>The people doing this course and I have a lot of things in common.</td>
<td></td>
</tr>
<tr>
<td>In school I had more trouble learning to read than most other students.</td>
<td></td>
</tr>
<tr>
<td>My parents understand me.</td>
<td></td>
</tr>
<tr>
<td>Most of my friends are better looking than I am.</td>
<td></td>
</tr>
<tr>
<td>Most people have more friends of the same sex than I do.</td>
<td></td>
</tr>
<tr>
<td>I like meeting new people.</td>
<td></td>
</tr>
<tr>
<td>The students doing this course find me to be approachable and supportive.</td>
<td></td>
</tr>
<tr>
<td>It seems I have to study much harder than most other students doing this course.</td>
<td></td>
</tr>
<tr>
<td>Everyday at work is a new experience.</td>
<td></td>
</tr>
<tr>
<td>I have good reading comprehension.</td>
<td></td>
</tr>
<tr>
<td>I like my parents.</td>
<td></td>
</tr>
<tr>
<td>I am good looking.</td>
<td></td>
</tr>
<tr>
<td>I have lots of friends of the same sex.</td>
<td></td>
</tr>
<tr>
<td>Overall, I do lots of things that are important.</td>
<td></td>
</tr>
<tr>
<td>I feel awkward making new acquaintances.</td>
<td></td>
</tr>
<tr>
<td>I consider my work to be enjoyable.</td>
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<tr>
<td>Overall, I am not very accepting of myself.</td>
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Appendix C.4
SDQIII—A Short Version for Significant Other Application
TO BE COMPLETED BY THE
SIGNIFICANT OTHER PERSON

NAME: ___________________________ ID No.: ___________________________

P 3
SDQ III-A SURVEY
(SELF DESCRIPTIVE QUESTIONNAIRE - FORM A)

The person who gave you this questionnaire to complete has been selected as part of a major study of TAFE students in New South Wales. You are one of several thousand people involved in the research, and like the person who gave you this questionnaire, your individual participation is indeed vital to the project. Your involvement is on a voluntary basis, and total confidentiality is assured.

This is not a test - there are no right or wrong answers. The study investigates how people describe themselves, and how accurately their thoughts and feelings can be assessed by another person who knows them very well (this is you). Your task is to try to imagine that you are the person who gave you this survey and to complete the items on the following pages as he/she would do. When you have completed the survey, place it in the envelope provided (making sure to seal it and then sign your name across the seal), and return it to the person who gave it to you. They in turn will bring it back to the College for collection.

Your responses will be kept strictly confidential and not shown to anyone not connected with this project, and of course, never shown nor discussed with the person who gave this survey to you. Consequently, we are asking you to be candid in making your responses.

Please ensure that the questionnaire is returned to the College, for if the study is to be successful, it is essential that students' surveys be matched with the relevant "Significant Other" person's questionnaires. Simply put, unmatched surveys are of no value to the project.

Before proceeding on to the SDQ III-A, please complete the following questions about yourself (not the person who gave you the questionnaire) by placing your response (e.g. the appropriate number etc.) in the box or on the line provided:-

A. What will your age be on your next birthday? ______

B. What is your sex? 1. Male 2. Female ______

C. Indicate (in years) how long you have known this person? ______
D. Which of the following situations best describes your relationship with the person who gave you this survey?

1. Casual friend
2. Friend
3. Good friend
4. Spouse
5. Boyfriend/Girlfriend
6. Parent
7. Brother/Sister
8. Other (specify: ___________________)

E. Please indicate how well you know this person?

1. Not very well
2. Reasonably well
3. Quite well
4. Extremely well
5. Better than anyone else

F. To what extent do you feel you should (or will) support the person who gave you this survey, in their studies?
(Circle the appropriate number on the scale below)

1 2 3 4 5
Not at All In Some Ways In Every Way

************ HOW TO COMPLETE THE SDQ III-A ************

On the following pages are a series of statements that are more or less true (or more or less false) descriptions about the person who gave you this survey. Each question is worded in the first person since you are imagining yourself to be that person. Please use the following eight-point response scale to indicate how true or how false each item is as a description of you (that is, the person who gave you the survey). Write the appropriate number on the short line between the question number and the statement itself.

1 2 3 4 5 6 7 8
Definitely False Mostly More More Mostly True Definitely False False True True
Than Than
True False

Respond to the items as you now feel even if you felt differently at some other time in your life. In a few instances, an item may no longer be appropriate to you, though it was at an earlier period of your life (e.g., an item about your present relationship with your parents if they are longer alive etc.). In such cases, respond to the item as you would have when it was appropriate. Try to avoid leaving any items blank.

*** THANK YOU FOR YOUR PARTICIPATION ***
1. I have a lot of respect for myself.
2. I often tell small lies to avoid embarrassing situations.
3. I have trouble expressing myself when trying to write something.
4. I am usually pretty calm and relaxed.
5. I enjoy doing work for most academic subjects.
6. I am never able to think up answers to problems that haven’t already been figured out.
7. I have a physically attractive body.
8. I look forward to most social functions.
9. People at work do not appear to be interested in what I do in my studies.
10. Overall, I have self-confidence.
11. People can always rely on me.
12. I can write effectively.
13. I worry a lot.
15. I am good at combining ideas in ways that others have not tried.
16. I am ugly.
17. I have to force myself to attend most social functions.
18. People at work are generally interested to hear about my studies.
19. I know I have the ability to get through this course.
20. I have generally done better in mathematics courses than other courses.
21. Spiritual religious beliefs have little to do with my life philosophy.
22. Overall, I am pretty accepting of myself.
23. I enjoy a close personal bond with the people in this course.
24. I feel that everyone else will get through this course and not me.
25. I have lots of friends of the opposite sex.
26. I have a poor vocabulary.
27. I like most academic subjects.
28. I wish I had more imagination and originality.
29. I have a good body build.
30. I don’t get along very well with other members of the same sex.
31. I have good endurance and stamina in sports and physical activities.
32. I find the team spirit generated by this course to be very satisfying.
33. Mathematics makes me feel inadequate.
34. Spiritual religious beliefs make my life better and make me a happier person.
35. Overall, I don’t have much respect for myself.
36. Most of my friends are more comfortable with members of the opposite sex than I am.
37. I am an avid reader.
38. I have trouble with most academic subjects.
39. I enjoy working out new ways of solving problems.
40. There are lots of things about the way I look that I would like to change.
41. I make friends easily with members of the same sex.
42. I hate sports and physical activities.
43. I feel very comfortable with the people in this course.
44. Generally, I find it difficult to keep up with other students doing this course.
45. I am quite good at mathematics.
46. My spiritual religious beliefs provide the guidelines by which I conduct my life.
47. I sometimes take things that do not belong to me.
48. I am comfortable talking to members of the opposite sex.
49. I tend to be high-strung, tense and restless.
50. My values are similar to those of my parents.
51. I am good at most academic subjects.
52. Other members of the same sex find me boring.
53. I have a high energy level in sports and physical activities.

54. I like to socialise at work.

55. My work is mostly mundane.

56. I have trouble understanding anything that is based upon mathematics.

57. Continuous spiritual/religious growth is important to me.

58. I never cheat.

59. I'm quite shy with members of the opposite sex.

60. I do not spend a lot of time worrying about things.

61. My parents have never had much respect for me.

62. I'm not particularly interested in most academic subjects.

63. I share lots of activities with members of the same sex.

64. I'm not very good at activities that require physical ability and coordination.

65. I find my work interesting.

66. I have always done well in mathematics classes.

67. I rarely if ever spend time in spiritual meditation or religious prayer.

68. Being dishonest is often the lesser of two evils.

69. I make friends easily with members of the opposite sex.

70. I am often depressed.

71. My parents treated me fairly when I was young.

72. I am not very original in my ideas, thoughts, and actions.

73. I like to exercise vigorously at sports and other physical activities.

74. I find that I can take on the material covered in this course with relative ease.

75. I have nothing in common with the people doing this course.

76. I never do well on tests that require mathematical reasoning.

77. I am a better person as a consequence of my spiritual/religious beliefs.

78. I am a very honest person.

79. I have had lots of feelings of inadequacy about relating to members of the opposite sex.

80. I hardly ever feel depressed.

81. It has often been difficult for me to talk to my parents.

82. I am an imaginative person.

83. I am poor at most sports and physical activities.

84. Most of the other students doing this course seem more tuned-in than me.

85. I enjoy attending our work's social functions.

86. The people doing this course and I have a lot of things in common.

87. In school I had more trouble learning to read than most other students.

88. My parents understand me.

89. Most of my friends are better looking than I am.

90. Most people have more friends of the same sex than I do.

91. I like meeting new people.

92. The students doing this course find me to be approachable and supportive.

93. It seems I have to study much harder than most other students doing this course.

94. Everyday at work is a new experience.

95. I have good reading comprehension.

96. I like my parents.

97. I am good looking.

98. I have lots of friends of the same sex.

99. Overall, I do lots of things that are important.

100. I feel awkward making new acquaintances.

101. I consider my work to be enjoyable.

102. Overall, I am not very accepting of myself.
Appendix D.1

New Student Support Program (NSSP) Brochure for Withdrawing and Discontinuing Students
**Rules on Satisfactory Progress**
- If you don't satisfy your Faculty's satisfactory progress rules, you will be asked to 'Show Good Cause' why you should be allowed to re-enroll. Check this with your TAFE office and Faculty handbook.

**Youth Allowance and Austudy Rules on Satisfactory Progress**
- Youth Allowance and Austudy is payable for the minimum time (plus one semester/year) it takes you to complete any diploma course.
- Centrelink will count all the years you have studied at the level of the course you are doing (withdrawal is not counted), so a longer time to complete could affect your later Austudy and Youth Allowance eligibility. Different rules apply to each payment, so check with Student Services Staff.
- If 'special circumstances' exist for discontinuation then you can apply to have that year disregarded under Austudy and Youth Allowance rules. To be sure, contact your case Austudy or Centrelink case manager.

**New Student Re-Entry Option**
- Special circumstances may be taken into account if you are a new student and have missed less than four weeks of attendance to classes. A special re-entry program is available to assist you to rejoin your classes while a support team of teachers and students brings you up-to-date with missed material, tutoring etc. Contact the NSSP and Faculty office.

**'Special Circumstances' (illness or misadventure)**
- Establishing that special circumstances affected you can be important for Discontinuation, Withdrawal, Fail, and Fail grades. Youth Allowance, and Austudy, etc. Official College requirements for demonstrating 'Special Circumstances' vary but normally you would need to show that they were:
  - beyond your control,
  - significant enough to affect your study, and
  - not apparent until after the start date of the course.

- Help with further explanation of policy and preparation of an application is available at the Student Services office or the Counseling Unit.

### Contacts

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<tr>
<th><strong>Students' Representative Council</strong></th>
<th><strong>NSSP and Faculty Office</strong></th>
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<td>Student Faculty Advisor:</td>
</tr>
<tr>
<td></td>
<td>9208 1755</td>
</tr>
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<td></td>
<td>Room 01.34</td>
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<tr>
<td>Childcare Information Officer:</td>
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<td>9208 1809</td>
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<tr>
<td>Counseling Unit:</td>
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<td>9208 1727</td>
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<td>Learning Centre:</td>
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<tr>
<td>Library:</td>
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<tr>
<td>9208 1648</td>
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</table>

### Hotline

**9208 1862**

### The NSSP Guide to WITHDRAWING & DISCONTINUING

Useful contacts and places to get help

- Youth Allowance and Austudy
- Student Re-Entry Options
- International Students
- Special Circumstances
- Your Academic Record
- Fees

**Note:** Please be aware that the information contained in this brochure, such as procedures, regulations, the people to contact and the services available may have changed since printing. You are advised to seek up-to-date advice before making decisions. Thank you to the University of Sydney regarding the design of this brochure. Prepared by *New Student Support Program (NSSP).*
Help with difficulties
Depending on the nature of the difficulty that has led you to consider withdrawing, the following services or people may offer you some assistance regarding your options. In the end however, the decision to continue in or withdraw from your program of studies should ultimately be your's.

Learning/study difficulties
- Your teachers
- Learning Centre
- Counselling Unit

Career Choice
- Counselling Unit

Work, Personal or Family Problem
- Your employer, HR Manager, colleagues etc
- Your friends or family where appropriate
- Counselling Unit

Financial difficulties
- Youth Allowance and Austudy
- Centrelink

Medical/disability difficulties
Disabilities Unit

Academic/grievance/course problems
Faculty Manager
Counselling Unit

Discrimination/harassment problems
Counselling Unit

See the Contact List on the last page for phone numbers and addresses. Otherwise, contact the Counseling Unit for referrals or the student Hotline on 9208 1862.

Changes to your enrolment and academic record
You must seek permission in writing from your Faculty Manager regarding any changes in your course program or enrolment. Advice and assistance with an Enrolment Adjustment application can be organised by your Faculty Manager. Permission to get into a new module must also be obtained from the Faculty Manager within a week of the commencement of courses if there are vacancies available.

Know the deadlines for changes to your enrolment. Missed deadlines can be expensive and may affect your academic record.

Should you drop out without any official notification to College administration, results on your academic record may show either:

"Withdrawn": This result is applied when the student is noted by the teacher as no longer attending after having completed 25% or more of the module, and in the opinion of the teacher, was participating at a pass level in the subject.

"Discontinued": If the student has attended class on at least one occasion and not more than 25% of the module, a result of Discontinued will be applied. No notation of the subject being attempted will appear on the student's academic transcript.

"Fail": The student's academic transcript will show a Fail result if the student has attempted the module assessments and achieved a Fail outcome, or has failed to successfully complete all required assessments of the subject, or has attended at least 25% or more of the module, and in the opinion of the teacher, was participating at a fail level in the module.

"No Start": A No Start result occurs when the student is enrolled in a course module but does not attend any classes. There is no notation of the module being attempted on the student's academic transcript.

Youth Allowance and Austudy
- You must be full-time to qualify for Youth Allowance or Austudy. Normally you are 'full-time' only if your hours are 22 or more weekly. Check changes to your loading with your Faculty Manager.
- Part time students with disabilities may also be eligible for Austudy.
- If you stop being full-time inform Centrelink immediately as you cease being eligible from the date of discontinuation. Delays in notifying them could lead to overpayments and 'breach' penalties.
- You may be eligible for a NewStart Allowance ('dole') from Centrelink if you are part-time and studying less than 15 hours and looking for full-time work.

Fees
- You typically incur your fees for both First Semester and Second Semester. If you officially withdraw or transfer before the end of the first week you may be entitled to a refund or transfer of the fees to the new program of study.
- Application forms and further information is available from the Student Services and Administration Office.

International Students
If you are an International student you are generally required to be enrolled full-time in order to satisfy your visa conditions. Check with the staff at the College Business Unit regarding your status and responsibilities as an international student.

Student Emergency Dropout Support Hotline
This Hotline service operates between 9am and 5pm, Monday through to Friday, and is specifically designed for students requiring assistance regarding their intention to withdraw from their program of study. The Hotline is operated by qualified academic advisors, and is free of charge and completely confidential. Ring 9208 1862 before you take a final decision to withdraw.
Appendix D.2

Student Self-concept and Retention Research Project: Preparatory Information to Participating Teachers
Self-Concept & Retention Research Project

Preparatory Information to Participating Teachers

Preparations for Project Implementation

As you are no doubt aware, the Student Self-concept and Retention Research Project is in full swing and the final stages for implementation of the project are now in preparation. You will recall that the intervention designs to be applied in the upcoming study form part of a theoretical model of an integrated institution-wide retention plan developed for the college. The project seeks to identify strategies to improve student retention. The research program has the full support of the college and approval to proceed has been granted by the college ethics committee.

The issue of this information sheet is in preparation for the workshops planned for the non-teaching weeks. All participating teachers have been notified of the classes to which they have been randomly allocated. If you have not already identified the workshop sessions you will be attending according to your allocations, please consider this information release as a reminder to schedule your attendance and complete your EC forms to cover your participation ASAP.

Intervention Designs

This information sheet is designed to provide you with further detail of the experimental intervention designs to be applied in the research project. If the structure of the intervention programs seem a little complex at the moment, do not panic – the workshops have been organised to ensure every participating teacher fully understands their role in the project.
The New Student Support Program has been designed specifically for this research project, and comprises several variations in intervention designs. The following sections provide an overview of each of these interventions.

**New Student Support Program.** The ‘New Student’ Support Program (NSSP) forms the basis for the intervention programs and comprises two basic levels. Level I is referred to as the ‘Base Treatment’ intervention and is simply the application of the instruments used to measure student self-concepts and various other student facets (all teachers will complete the instrument during the workshops). Those teachers issued with the task of instrument application in the classroom will at the same time discuss various aspects of self-concept with students. Level II of the NSSP is a far more intensive focus on student self-exploration, requiring students to participate in numerous exercises and discussion regarding self-concept/non-persistence and their relation to: esteem building; feelings, emotions and stress; individual differences; and team building.

The various levels of the ‘New Student’ Support Program (NSSP) form part of modified syllabi in the communication modules undertaken by the students during their first semester of the course program. The student/teacher ratio for the communication modules remains at 15:1. A total of 6 hours (2 x 3 hour applications at the beginning and end of the research period) have been set aside for instrument application and discussion (Level I ‘Base Treatment’), and a further five hours allocated to those teachers delivering the Level II components of the New Student Support Program. Teachers will be provided with the resources necessary to deliver the material comprising Level I and II of the NSSP during the project workshops.

**Experimental Classes**

In the following section, details for each of the experimental class groups (1 Comparison x 3 Program groups) are presented. Interventions increase progressively from no treatment whatsoever for the Comparison group classes, to three sets of interventions
for the Program 3 group of classes. The following table provides a visual map of the progressive building of interventions for the sample groups.

<table>
<thead>
<tr>
<th>Sample Groups</th>
<th>NSSP Level I</th>
<th>External Interventions</th>
<th>NSSP Level II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comparison</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Program 1</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Program 2</td>
<td>Yes</td>
<td>Yes Student-Activated</td>
<td>No</td>
</tr>
<tr>
<td>Program 3</td>
<td>Yes</td>
<td>Yes Institution-Activated</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**Comparison group classes.** Nineteen randomly selected intact classes have been assigned to the Comparison (contrast) sample. Teachers of the Comparison group classes will conduct classes as they normally would, with no interventions of any kind planned for these students.

**Program Groups.** The ‘Base Treatment’ set of three Program groups comprises 28 intact classes, each of which has been randomly assigned to one of three Base Treatment Program groups (i.e. Base Treatment only Program 1, Base Treatment with Student-Activated Program 2, or Base Treatment with Institution-Activated Program 3). All students in this set of experimental groups will be exposed to the complete battery of instruments for the self-concept project (Base Treatment), both at the beginning (the first week of TAFE courses) and at the end of the research period (between the 6th and 8th week and before the completion of first term). Teachers of the three Program groups should understand that although instrument completion and discussion with participants
of issues related to self-concept form the basis of the major data collection for the study, the application of the instrumentation itself is considered a key component of the intervention programs (i.e. the Base Treatment). The following sections describe the parameters of the three Base Treatment Program sample groups.

Program 1 (Base Treatment only). Cohorts in this sample group of classes will be exposed to all instrumentation and self-concept discussions (Base Treatment), both at the beginning and at the end of the research period, but will not receive any form of treatment extension (i.e. Level II NSSP, a Student-Activated or Institution-Activated treatment program). Program group 1 (Base Treatment only program) will be exposed to the Level I self-exploration aspects of the NSSP only.

Program 2 (Base Treatment plus a Self-Activated Treatment Extension). Students of these classes will not only receive the Level I Base Treatment, but also a further intervention program referred to as the ‘Student-activated Treatment Extension’. The most important aspect for this Program group of classes is that before support can be provided to the student, they must self-initiate the necessary action to access existing college support services and facilities. Program group 2 classes therefore receive the Level I Base Treatment from the NSSP, plus the following Student-activated Treatment Extension strategies:

1. The release of an information flyer to students at the beginning and mid-trial points outlining existing student support (e.g. study skills and remedial programs, tutorial support, childcare etc.) and counselling services at the College;
2. A 12 hour counselling hotline for students intending to withdraw from their course of study, outlining available options for the student and providing access and direction to further self-initiated assistance;
3. A re-entry program designed for students who initiated contact to continue in their course of study after a period of extended absence from classes (i.e. up to three weeks duration).
4. The provision of regular group exercises and discussion sessions to examine self-concept and related issues.

Teachers of the Self-Activated Program 2 intervention groups will be instructed not to provide any other support to students than that which they would generally do during the course of their normal teaching practice.

Program 3 (Base Treatment, Esteem Building, plus an Institution-Activated Treatment Extension). Classes receiving Program 3 interventions will be exposed to both the Level I (Base Treatment) and Level II (Esteem Building) strategies of the NSSP, plus the Institution-activated intervention. Apart from a supplementary program of esteem building and related exercises, participants of the Institution-activated Program 3 classes will be monitored by the college for indications of at-risk behaviour. Unlike the circumstances of Program 2 classes, students of Program 3 classes who display non-persistence patterns of behaviour will be identified and appropriate interventions initiated by the college to intercede the withdrawal process. A manual system of monitoring student participation and persistence will be coordinated by the faculty manager but maintained by participating Program 3 teachers. Cohorts of the Institution-activated Program 3 group of classes will therefore receive: the full battery of research instruments at beginning and end of the research period together with discussion of self-concept related issues (Level I Base Treatment); the Institution-activated intervention program; and the Esteem Building supplement (NSSP Level II). The following strategies therefore comprise the interventions for Program 3 participants:

NSSP Level I strategies:

1. The provision of regular group exercises and discussion sessions to examine self-concept and related issues.
Institution-activated strategies:

1. The application of a manual group monitoring system (coordinated by faculty and maintained by teachers) to ensure the earliest notice for intervention for those considering withdrawal; and

2. Ensuring that students are provided with organised appointments with appropriate counselling services upon notification of an intention to withdraw (including the establishment of a verbal contract regarding the appointment).

NSSP Level II strategies:

1. The establishment of a team building and peer support network to ensure that each member of the group is at all times accessible to all other group participants (e.g. for the purposes of consultation on team projects; discussion on the content of assignments, examinations etc.; the exchange of strategies for improved study techniques; arranging for course notes to be taken during absences; organisation of social activities outside college hours etc.).

2. Discussion sessions examining issues such as esteem building, individual differences, learning styles, and emotive issues related to study, family and work circumstances; and

3. The provision of a greater level of teacher input (e.g. increased levels of student feedback, formalised times for access to the teacher for student consultation both at the institution and after-hours via a telephone hotline).

Summary of the interventions. Sample groups for the experimental interventions comprise one Comparison (contrast) group and three Program treatment group. The Comparison sample group receives no form of intervention or treatment. The three Program intervention groups will each be exposed to a Base Treatment program that comprises self-concept exploration exercises and discussion sessions during class. The type of services included in intervention designs for the Base Treatment only Program 1, the Student-activated Program 2 and the Institution-activated Program 3 groups are similar, however only the method for the advising and utilisation of these services differs between the samples. For the Program 1 Base Treatment only and Student-activated
Program 2 participants, the identification of a persistence related problem is left to the student as is the seeking out and accessing of college support services to assist them in dealing with their issues. Student-activated Program 2 participants received additional advice regarding the types of college services available to assist with a persistence-related problem (e.g. information flyers), support (access to a 12-hour counselling hotline) and notification of a re-entry option should they withdraw from their program of study. For the Institution-activated Program 3 cohort, Level II of the NSSP also provides a modified account of what existing college services (e.g. counselling) would provide for the student seeking assistance but presented during class discussions (e.g. struggling students are encouraged to consider alternative attendance patterns, reduce program loads, initiate peer support network etc.). A student monitored and identified as at-risk of dropping out for Program 3 participants initiates the Institution-activated intervention, where the student is approached by the faculty advisor and formal processes are activated for the student to access further college services as required.

**Teacher Participant Training**

A total of eighteen teachers have been randomly assigned to the Comparison or Program groups. A series of four 3-hour workshops (one general forum and session for each of the Program groups) are to be conducted during the non-teaching period prior to the research application. Workshops for teachers will provide further instruction, demonstration and rehearsal of the strategies and implementation procedures for each of the Comparison and three Program group interventions. A selection of specialist teachers with substantial qualifications in psychology will participate in the teacher workshops to examine issues related to self-concept and other self-exploratory exercises for delivery to the students in the three Program groups.

Teachers will also be provided with Teaching Resource Guides and instructed on discussion techniques to focus on and convey issues of relevance to the intervention, including: The implications of self-concept as a mediating variable to other desirable outcomes (i.e. persistence, achievement, self-worth); the importance of the construct in
itself (i.e. maintaining a positive and stable self-concept across academic and social facets, in the social, work and college environs); important and relevant outcomes regarding the construct as evidenced in past research; maximising internally focused feedback regarding the interpretation and implications of individual student outcomes generated from completion of the instruments.

Workshop activities will also include instruction of methods to be applied in order to: obviate problems such as diffusion effects occurring between the student sample groups (teachers remaining aware of the differing levels of intervention between the Comparison and the three Program groups); and the methods for monitoring and reporting student attendances, behaviour patterns of concern etc.

Further Information

Any issues of concern can be raised at the workshops with the Project co-ordinator, John Wylie. Please feel free to contact John on 9208 1792 regarding matters of EC’s, workshop attendances, issues for discussion etc.
Appendix D.3

New Student Support Program Level I: Self-esteem Teaching Guide for Delivery to Program Groups 1, 2 and 3
Self-image and Self-esteem

INSTRUCTIONS TO TEACHERS OF PROGRAM GROUP 3 PARTICIPANTS

Inform the student that this is more an information and discussion session. Note taking is not necessary; it is more important that the student understands the implications of self-image and self-esteem relating to their participation in the study program. In particular, allow the students the opportunity to consider the role self-esteem may play in a student’s decision to withdraw from their studies. Provide students with the accompanying handouts to keep things moving along. Numerous exercises have been included in the lesson plan however, only do as many as time permits. This session should be the first to be delivered and preferably in a one-hour block.

Session Outcomes: At the end of this session, Program 3 participants should be able to

- define self-esteem
- identify the sources of self-esteem
- list items that may destroy self-esteem
- discover ways to increase self-esteem
- describe the importance of self-esteem in a workplace environment
- describe the relevance of self-esteem to course persistence

Learning resources:

- Whiteboard and coloured pens
- Information sheets 1, 2, 3
- OHT 1, 2, 3
- Activity 1

Learning Guide

<table>
<thead>
<tr>
<th>Content</th>
<th>Teacher/Trainer Activity</th>
<th>Participant Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-esteem</td>
<td>Brainstorm then discuss what Self-image, self respect and self-esteem are. Write on whiteboard definition of self-esteem.(Information sheet 1)</td>
<td>Join discussion on what Self-image/respect/esteem are.</td>
</tr>
<tr>
<td>Content</td>
<td>Teacher/Trainer Activity</td>
<td>Participant Activity</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Sources of self-esteem</td>
<td>Activity: Ask participants to write down all the things that make them feel good about themselves. Write the four heading groups on whiteboard. (Information sheet 1) Discuss lists. Do they have at least one item in each category?</td>
<td>Participants to take part in activity and discussion</td>
</tr>
<tr>
<td>Items that may destroy self-esteem</td>
<td>Brainstorm for ideas of items that may destroy self-esteem. Write suggestions on whiteboard (include the ones listed in Information sheet 1). Give or ask for examples of each item. Show and discuss OHT 1- self tapes. The ones with a dot beside them are negative messages.(Information sheet 1)</td>
<td>Participants to contribute examples of events that lowered or destroyed their self-esteem, and to identify if they were self inflicted causes or not</td>
</tr>
<tr>
<td>Ways to restore self-esteem</td>
<td>Show and discuss OHT 2- ways to restore self-esteem. To control the emotions - use E’s (ease) of healthy self-esteem. (Information sheet 2); visualisation techniques (Information sheet 3)</td>
<td>Join discussion, offer suggestions as to other ways to restore self-esteem. Relate to at-risk behaviour.</td>
</tr>
<tr>
<td>Importance of self-esteem in a workplace and college environment</td>
<td>Distribute Activity 1-importance of self-esteem in a workplace or college environment. Invite participants to read one section each, to rephrase it in their own words, and if possible, give workplace and college examples or illustrations</td>
<td>Participants to read one section of handout each, rephrase it and give examples or illustrations.</td>
</tr>
</tbody>
</table>
Self-image, Self-esteem and Self-concept

Self-image is the way we think we appear to other people. Self respect is the respect we show to ourselves (and also to others). Both are based on self-esteem which is what we think of ourselves (and others) and whether or not we consider we are of value to ourselves and society in general. Self-esteem is also known as self-concept.

Sources of self-esteem

Our self-esteem generally comes from the following four sources:

- Hearing good things about ourselves from others
- Setting our own goals and objectives
- Matching our behaviour with our values
- Being autonomous (self governing)

Actions that destroy self-esteem

The following actions can destroy self-esteem

- hurtful remarks
- derogatory gestures
- negative self talk
- uncontrolled emotions

Hurtful remarks are not always intended to hurt us. Sometimes they are said in jest or without thought. Sometimes they are meant to boost up the speaker’s self confidence.

Derogatory gestures can be hurtful. To minimise their effects, give a positive gesture in return eg a smile, wave etc.

Negative self-talk is immobilising. Telling yourself you are useless, not effective or unproductive will result in prophetic fulfilment. Change the negative to a positive and let that be your prophetic fulfilment.

Negative self-talk has a weakening effect on your mind and body. Your deltoid muscle can be tested as follows:

Ask a person to stand, raise their arm and lock it in a strong position at a 45 degree angle to their body. Try to push the arm down at the wrist - it resists you. Repeat negative messages to person, and push arm down at wrist again. Most people find it impossible to keep their arm locked firmly in place while hearing negative things about themselves.
Uncontrolled emotions are dangerous to self-esteem because they stop you seeing things in perspective. They distort the facts and control your brain instead of logical and analytical reasoning.

**Ways to restore self-esteem**

Two excellent strategies for restoring self-esteem are:

- Control the emotions and negative self-talk by using the E’s (ease) of healthy self-esteem (Information sheet 2).
- Visualisation techniques (Information sheet 3)

**Importance of self-esteem in the workplace**

The importance of self-esteem in the workplace cannot be too highly stressed. Employees who have a healthy self-esteem will work more effectively, achieve more, better manage difficult situations, have better communication skills and present a professional image of the company they represent.

**Discussion**

- Discuss the tapes one might play to themselves.
- Discuss ways to restore self-esteem.
- Discuss the E’s (Ease) of Healthy Self-Esteem
- Discuss Visualisation Techniques
- Discuss how attending studies may impact on an individual’s self-esteem

**Conclusions**

It is clear that self-esteem comprises many facets of self-concept. We have identified that self-esteem may impact on many aspects of our lives, including work, family and social relations.

(NB: Please complete the delivery evaluation and return to the faculty office)
Some tapes you may be playing to yourself

I am happy          I’m a winner          I can do anything
I am a loser.      I’m neurotic.       I am popular
I am fine          I’m lovable          I’m fat.
I’m sad.          I’m a slow learner.   I’m healthy
I am a good person I am clumsy.        I am blessed
I am sick.        I’m cool            I’m stupid.
I am bad.         I am a good pupil    I’m crazy.
I’m a mess.       I’m a bore.         I’m no good at work.
I’m smart         I’m not OK.         I’m capable
Ways to restore self-esteem

The following steps will help you restore your self-esteem:

1. Control the emotions - both positive and negative
2. Refuse to take hurtful remarks and gestures personally
3. Listen to the message behind the statement or action
4. Analyse if it is true or false - if true, work on the problem. If false, forget it
5. Give positive reactions in exchange for negative ones
6. Remind yourself:

   No matter what anyone may say or do to me, I am still a worthwhile person
THE E’s (Ease) OF HEALTHY SELF-ESTEEM

E  Event - the thing that happened
E  Evaluation of the event
E  Emotion that follows

Most people believe it is the event that causes the emotion, but it is always the evaluation of the event that causes them.

We cannot change the event - but we can change our evaluation of the event. By changing the evaluation from negative to positive, we minimise or rationalise the emotions.

Example 1:

event  Exams are coming
evaluation  I believe I might fail
emotion  I feel anxious, distressed, gloomy

Change evaluation

event  Exams are coming
evaluation  I believe I might fail. If I do, I will have to redo this subject. That won’t be a problem. However, I will go in and do my best.
emotion  will automatically reduce the negative emotion.
Example 2:

*event*  
He called me a big fat slob

*evaluation*  
I believe he doesn’t like me.  
Perhaps no one likes me.

*emotion*  
I feel unloved, unwanted, unimportant

Change evaluation

*event*  
He called me a big fat slob

*evaluation*  
I believe he doesn’t like me. I wonder what I did  
to make him call me names. I will have coffee with  
him tomorrow and ask him. Our relationship is  
important to me.

*emotion*  
will automatically reduce the negative emotion.

Example 3:

*event*  
False accusations, name calling

*evaluation*  
I believe they think I did it

*emotion*  
Anger

Change evaluation

*event*  
False accusations, name calling

*evaluation*  
I believe they think I did it. However, I know I  
didn’t do it. If I act as though I didn’t do it,  
perhaps in time they will believe me. If they don’t  
believe me, then there is nothing more I can do  
about it.

*emotion*  
will automatically reduce the negative emotion.
Visualisation Techniques

Visualisation techniques give you the opportunity to do something positive about removing strong negative emotions that control you. The secret of visualisation is that it provides a way to add humour back to an otherwise very black situation. Visualisation is not a denial of a problem or the pain that comes from the negative emotions. It is a technique to minimise its effect on your life.

Step 1  Feel the negative emotion, and the pain it brings
Step 2  Name the negative emotion you felt: eg, anger, frustration, jealousy, discouragement etc
Step 3  ‘Package’ the emotion
Step 4  Dispose of the emotion

Example 1:
See yourself taking the strong negative emotion out in a boat, finding the deepest part of the ocean, tossing it overboard, and ‘seeing’ it gurgle all the way to the bottom. If it pops up again, whack it with a stick. Repeat three times until it sinks. Laugh. Feel the wonderful freedom without the negative emotion.

Example 2:
See yourself and your negative emotion going out for a drive together. When it gets out of hand, see a red traffic light, and yell STOP! See the emotion screeching to a stop. Talk to the emotion. Tell it you are in charge here, and if it wants to come driving with you, then it has to behave itself. Be very assertive with the negative emotion. See it behaving itself beside you in the seat.

Example 3:
Truss up the negative emotion with lots of thick rope. See yourself taking the negative emotion to a large rubbish bin. Lift the lid, and toss it in. Put the lid on tightly. If it tries to get out of the rubbish bin, sit on the lid. See the trash van arriving and carting off the negative emotion. Wave goodbye to it. Laugh.

Example 4:
This is called guided recall. It is a technique where you actually allow the negative emotion to take charge of you for a few minutes. You feel the pain it causes you, and you make a conscious decision to let the pain go. You just simply release it from your body, feel it slipping out and away. Then slowly come back to reality and get on with your life.

Example 5:
Give the negative emotion to a friend who is an expert in this area. Have the emotion all ready taped up in a very strong box. Meet your friend, and hand over the emotion. Walk away without it.
## The importance of self-esteem

| Perform better                                      | • Answer telephones - voice has more authority
|                                                     | • Deal with public - good eye contact, assertive voice, nonverbal behaviour will match verbal
|                                                     | • Develop keyboard skills - faster, more accurate
|                                                     | • Have confidence to try new computer software
| Become high achievers                               | • Try new areas of growth and expertise
|                                                     | • Work out ways to do things better
|                                                     | • Extend comfort zone range to include jobs not liked before
| Have self confidence                                | • Is not afraid to turn mistakes into learning events
|                                                     | • Is not afraid to recognise own weaknesses
|                                                     | • Is prepared to make changes in thinking
| Be optimistic                                        | • Looks forward to every new day and the challenges it brings.
|                                                     | • Sees impossibilities as possibilities waiting to happen
| Be happy (inner peace and contentment)              | • Says: I’m an OK person. Good can come out of this!
| Be more effective communicators                      | • Able to level with customers, look at the problem and not the person, ask questions to cut to the core and find a solution
|                                                     | • Speak with people on any level
|                                                     | • Enhance questioning skills, avoiding the need to give advice
| Develop problem solving skills                       | • Look at the problem, not the person
|                                                     | • P - identify and label the problem
|                                                     | • O - look at all the options
|                                                     | • D - make a decision
|                                                     | • A - act on the decision
|                                                     | • F - ask for feedback - evaluate effectiveness
| Increase negotiation strategies                      | • Work towards a win/win situation.
| Practise active listening                            | • Listen to both the content and the feeling and give an appropriate response.
| Behave assertively                                   | • State the behaviour they want changed, the feelings or emotions they feel about that behaviour, the behaviour they want to see, and have the courage to ask politely for it

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<table>
<thead>
<tr>
<th>Set and achieve goals</th>
<th>• Set and adhere to long-term and short-term goals.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Handle complaints</td>
<td>• Solve problems.</td>
</tr>
<tr>
<td>Be authentic</td>
<td>• Avoid playing games, wearing masks or putting on acts. We know who we are, and we are OK.</td>
</tr>
<tr>
<td>Remove communication barriers</td>
<td>• Accept people who are different.</td>
</tr>
<tr>
<td>Use correct chain of command</td>
<td>• Work with others towards a common goal.</td>
</tr>
<tr>
<td>Have increased perception</td>
<td>• Recognise needs, values, beliefs and emotions etc of yourself and others.</td>
</tr>
<tr>
<td>Portray good corporate image</td>
<td>• Represent the goals, structure, culture and climate of your organisation.</td>
</tr>
</tbody>
</table>

**Self-esteem and your study program**

Construct a table similar to the workplace example above to identify positive behavioural outcomes and the activities, attitudes and perceptions to achieve those outcomes.

<table>
<thead>
<tr>
<th>Have a vision</th>
<th>•</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have self-confidence</td>
<td>•</td>
</tr>
<tr>
<td>Realise the benefits</td>
<td>•</td>
</tr>
<tr>
<td>Be optimistic</td>
<td>•</td>
</tr>
</tbody>
</table>
Appendix D.4

New Student Support Program Level II: Feelings, Emotion and Stress Teaching
Guides for Delivery to Program 3 Students
Feelings, Emotions and Stress

INSTRUCTIONS TO TEACHERS OF PROGRAM GROUP 3 PARTICIPANTS

Inform the student that this is more an information and discussion session. Note taking is not necessary; it is more important that the student understands the implications of feelings relating to their participation in the study program. In particular, allow the students the opportunity to consider the role positive and negative feelings might play in a student’s decision to withdraw from their studies. Relate feelings to emotions, and then discuss the implications of these to stress and persistence.

Provide students with the accompanying handouts to keep things moving along. Numerous exercises have been included in the lesson plan however, only do as many as time permits. Use feelings and emotions as a step process to stress (you may need to spend a little more time on the stress aspect).

Encourage the students to explore responsibility regarding expression of their positive and negative feelings and emotions, and the capacity they have to deal with the stress that may result. It is advised to deliver each of the three components (feelings, emotions and stress) in 3 x one half-hour blocks over three weeks. Further resources may be obtained from the faculty office as required.

Session Outcomes: At the end of this session, participants should be able to

Positive and negative feelings

- state the importance of recognising feelings
- distinguish when appropriate to express feelings and when it is not
- identify three areas where it is difficult to express feelings
- link negative feelings to non-persistence patterns
- use I-message formulas to express both positive and negative feelings
- deal with unhelpful feelings
Emotions

- define differences between feelings and emotions
- identify the role emotions play in our lives
- identify the implications of emotions in the business environs
- relate theories and components of emotion to everyday examples
- determine the implications of emotions as innate or learned
- relate feelings to emotions to stress

Stress

- define stress, eustress and distress
- relate stress to modern life, work and study
- distinguish various approaches to stress
- define the various characteristics of stress
- relate avoidance behaviour patterns in dealing with stress
- relate various strategies for coping with stress
- identify that we each deal with stress differently

Learning resources

- Whiteboard and coloured pens
- Butcher’s paper
- Information sheets
- OHT provided
- Activity list provided
Positive and negative feelings

Positive and negative feelings

Feelings are an emotion. We have many different types of feelings and emotions - some are negative and some are positive. Negative feelings are not ‘bad’ feelings. They are there to act as sensors to tell us something is happening, we are not feeling comfortable, and it is time to analyse the situation and find out why we are feeling these negative feelings.

Importance of recognising feelings

Sometimes we don’t acknowledge or show our feelings and this leaves others to misread our behaviour or try to guess why we are behaving the way we do. Most times it is better to express our feelings simply and honestly so others will know what effect their actions are having on us. It also helps to stop others using us, because they will know how we feel and why. Saying how we feel will encourage us to be more assertive.

When it is not appropriate to express our feelings

There are times when it might not be appropriate to express our feelings. For example, when we are overtired, overworked, not feeling well, overemotional etc. Sometimes we might misread the message the sender intended to convey. We may need to take time to clarify the message.

Areas where it is difficult to express our feelings

The areas where it is most difficult to express our feelings are:

- when they are happening now
- when the feelings are negative
- when we are speaking directly to the person affecting us
- when that person is in a higher rank than us (eg our boss)

Using an I-message

If we decide we want to express our feelings, the I-message is a polite, non-judgemental, effective way to do it. It is useful to express both positive and negative feelings.

A two-part I-message states:
• a description of a specific behaviour
• a description of your feelings

A three-part I-message states:
• a description of a specific behaviour
• a description of your feelings
• a description of why you feel the way you do

A four-part I-message states:
• a description of a specific behaviour
• a description of your feelings
• a description of why you feel the way you do
• a description of what you would like to see happen

Unhelpful feelings

This aspect includes exercises for the student to help them identify and deal with negative feelings generated by others regarding their participation in the educational program. Encourage students to provide examples of incidents involving work associates, family members and friends etc. Use the example provided in this section to demonstrate the concept, and then build a typical student/course related problem around it.

Unhelpful feelings are negative feelings that are inappropriate to express at the time. They include feelings such as anger, sarcasm, irritation etc. We may have to deal with unhelpful feelings first to reduce their intensity. There are a lot of excellent strategies available to deal with unhelpful feelings. A few strategies include visualisation techniques, aerobic exercises, fast walking, meditation, self talk etc. It is always better to tell someone afterwards how their behaviour made us feel than to explode with irrational statements and resort to name calling or threats because we are experiencing a high level of negative feelings.

You are required to write sentences expressing your feelings. For example, a sentence that expresses a positive message, spoken indirectly and referring to the past might be:

I felt excited when I saw my sister last week.

An example of a negative message, spoken directly and happening in the present might be:

I feel disgusted with your present behaviour.
Formulate an I-message

An I-message can be stated in two, three or four parts, though not necessarily in a prescribed order:

**Two-part I-message:**

1. Description of a specific behaviour
2. Description of your feelings

Example:
Your teacher is trying to make the lesson interesting, but you are totally bored and uninterested in the subject. You are not contributing in class, and you have spent the last 10 minutes making paper hats which you have lined up across the front of your desk. Your teacher says to you:

Willie, when you show no interest in what I am saying (the specific behaviour)

I feel put down and not respected as a teacher (the feelings).

*Try it this way:*
Willie, I feel put down and not respected as a teacher when you show no interest in what I am saying.
(Now have a student relate an incident involving a work associate, family member or friend).

**Three-part I-message:**
A three-part I-message adds some extra information to the statement about your feelings so that the other person understands not just what you feel but why you feel it.

1. Description of a specific behaviour
2. Description of your feelings
3. Description of why you feel the way you do

Willie, when you show no interest in what I am saying, (behaviour) I feel put down and not respected as a teacher (what you feel) because I have worked hard to try to make this lesson interesting. (why you feel)

*Try it this way:*
Willie, because I have worked hard to try to make this lesson interesting, I feel put down and not respected as a teacher when you show no interest in what I am saying.
(Now have a student relate an incident involving a work associate, family member or friend).
Four-part I-message:

A four-part I-message adds a description of what you would like to see happen:

1. Description of a specific behaviour
2. Description of your feelings
3. Description of why you feel the way you do
4. Description of what you would like to see happen

Willie, when you show no interest in what I am saying, I feel put down and not respected as a teacher, because I have worked hard to try to make this lesson interesting. I would appreciate it if you would make some of your valuable contributions to the lesson so we can enjoy our time in class together.

Try it this way:
Willie, because I have worked hard to try to make this lesson interesting, I feel put down and not respected as a teacher when you show no interest in what I am saying. I would really appreciate your contributions to the lesson. It will make it terrific for all of us.
(Round-off with a student/course related example).
<table>
<thead>
<tr>
<th>Feeling</th>
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<tbody>
<tr>
<td>Joy</td>
<td>disappointment</td>
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<td>Fear</td>
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<tr>
<td>Anger</td>
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Emotions

Demonstration of emotions

You are suddenly confronted by an attacker. You feel both surprise and fear. Immediately, your sympathetic nervous system has sprung into action. Your digestion shuts down as this is no longer a priority. Blood rushes to your skeletal muscles in the arms and legs so you can fight or run. Your heart rate and breathing increase so that there is sufficient blood and oxygen available for quick action. Your pupils dilate for increased perception, and you sweat profusely so your body temperature is best prepared for action.

What do we call emotions?

Emotions are usually related to how we feel about something or someone. Emotions can be good or bad, positive or negative, and weak or strong. Emotions are accompanied by some physical sensation. Laughing always seems more uplifting than crying.

What role do emotions play in our life?

Emotions do play a very important part in our lives. The very fact that we have a multitude of emotions creates the variety in our life. If we did not feel happy, sad, pleased, angry and so on, life would be pretty uniform and boring. Emotions also are useful in ensuring that we care enough about ourselves and others that we do not end up attacking, robbing or killing each other. Ironically, emotions can also be the reason why we attack or kill someone.

How do we feel about displays of emotion?

We seem to cope quite well with positive displays of emotion when these displays are positive. We don’t generally mind people displaying their happiness or surprise, but we seem to be embarrassed by people crying in front of us. Temper tantrums can have various effects on different people but generally people feel overwhelmed by their displays.

How do emotions fit in to every day life?

Emotions are always in contrast to rationality. Whilst there is no doubt that emotions are an integral part of being a human being, they also make it difficult to be rational. Just think how fear can affect our rationality. It is often more difficult to deal with situations in which we are emotionally involved than those we are not. Consider how much easier it is to give advice unemotionally to others than to receive it when emotions are involved.
Emotions in business

In business, heavy emotions are not really acceptable. We are supposed to act professionally (whatever this means) - that is rationally. Most managers are not trained to deal with emotions. The general feeling is that emotions should be left outside of business. Yelling at a customer is not the usual way to do business; crying because a competitor is making business difficult is not really the accepted behaviour. Conflicts and differences of opinion are supposed to be resolved without emotions but sometimes employees are so deeply affected by emotions in their private lives that it affects their work. A manager then has to deal with the situation and a better understanding of emotions can only but help deal with them.

Theories of human emotion

Deliver this aspect only if time permits. It is important that students are made aware that such theories exist and on what basis that they differ. There have been three basic schools of thought:

♦ James-Lange theory

Emotions are actually caused by our physiological responses. As James (1980) said, "We are afraid because we run; We do not run because we are afraid."

♦ Cannon-Baird Theory (1927)

It also proposes that the physiological component is the most important aspect of emotions, but places the source of the emotions in the thalamus part of the brain. According to this theory, the bodily reaction and emotional experience happen at the same time.

♦ The Two-Factor Theory

According to this model, the physiological responses, whilst an important component of emotion, are not the whole story. Schachter & Singer (1962), the proponent of this theory, argue that physiological arousal is a general state and that the exact nature of emotion felt depends on our cognitive appraisal.

Where do these theories fit in every day life?

The James-Lange theory does not really seem to fit into what we understand. I am sure that most of us know why we run. We do not start to run and then suddenly feel frightened because we are running.
As for the Cannon-Bard theory, it also emphasise the importance of the physical component but suggest that both the emotion and physical reaction happen at once. This may be true of some emotions like joy and anger.

As for the last theory, the suggestion is that the appraisal of how we feel determines the nature of our emotions.

Components of emotion

♦ Cognitive appraisal:
This is the way we perceive an object, event or situation to be in relation to us.

♦ Physiological reaction:
Refers to changes to our body states such as:
Increase heart rate, perspiration, shortness of breath etc...

♦ Observable responses:
Facial expression, body language, screaming, banging on the table, slamming doors etc...

Are emotions innate or learned?

It is difficult to really know even though research indicate that at least 6 emotions are recognised by most cultures and they are:

- Joy
- surprise
- sadness
- anger
- disgust
- fear

Members of some cultures seem to be able to show or hide their emotions more than others. This related to social acceptability of the displaying of emotions in various cultures, e.g. Japanese vs Italian, the English and their ‘stiff upper lip’ etc. Actors can exhibit emotions they do not truly feel! How do Australians behave? What emotions do Australians have toward education – particularly part-time studies (e.g. pride in achievement etc.)?

It seems that while some basic emotions may be present at birth, many of our emotions are learned. If we accept that emotions have a cognitive component then our cultural perception must play a great part in determining the way we respond to events and people and therefore the way we react emotionally. Joy may be common to most cultures, but the way that joy is produced may greatly vary. What may
make someone happy in one culture may disgust or sadden someone in another. In our culture, men, women and children are allowed to display their emotions to different extents. It is acceptable for children to have tantrums or for women to cry but not for men to do so. Open display of disgust may be acceptable in regard to objects but not toward other people.
Stress

To what does stress refer?

Stress is the name we use to describe a set of circumstances which happens as follows:

People are faced with circumstances to which they respond in an emotive way. Since emotions are accompanied by hormone releases of some kind it is not difficult to imagine that too much of any hormone could affect our chemical balance. In the long term, physical and mental effects may result. This is why some direct link has been suggested between "stress" and illness.

It is interesting to note that the word "stress" only became a popular term in the last few decades.

A few points worth making:

❖ We never get "stressed" when we are indifferent to a situation. For instance, if someone we don't know dies, we do not get "stressed" by it. Equally, if someone, at work has no authority but still tries to boss us around, it is unlikely that "stress" will result if we know that the person in question cannot do anything adverse to us. So, it seems that the first ingredient needed for "stress" to occur is some sort of response from the person being faced with a given situation. The fact is no situation is stressful, what makes it stressful is the way we react to it. It is equally fair to say that some people get "stressed" by situations that would not bother other people.

❖ If we believe that "stress" is an external event or some situation that we perceive as stressful, then it is very unlikely that we would control such situation very well. We may very well be resigned, as many people are, that we are faced with the inevitable. It also true, that many people tend to take credit for successes but blame failure on external factors and this makes these people likely "stress" victims, as it is easier to accept that "stress" is doing something to us rather that face to the fact that we are doing it to ourselves.

❖ There have been suggestions that there are different types of "stress": Good stress and bad stress. The first one has been called EUSTRESS e.g. (Eu)phoria + (stress). The last one resorts to a play on word with DISTRESS. So we have EUSTRESS, the good stress, DISTRESS, the stress that can be bad for us.

❖ We don’t really have good stress; what we have is strong pleasant emotions. People can be so overwhelmed in winning the lottery that it becomes too much and they end up having a heart attack. Instead of suggesting, as some do, that we
need a certain amount of “stress” to function, further demonstrates the confusion the invention of the term has created. What is probably more needed is for people to have a life with a healthy amount of emotions because there seems little doubt that if our lives were so boring that we did not experience any emotions we may be unfulfilled.

♦ ‘Stress’ is obviously an abstract concept and whilst there is no doubt that, if only just for the sake of economy of words, it is simpler to use the word “stress” than to explain the whole sequence of events involved in what we generally call “stress”, there is still a risk that people will accept it as a physical phenomenon. This is reinforced by the fact that we can feel the physical responses caused by the hormone releases, especially when there is a long term accumulation of those. If we start to feel sick as a result of “stress”, it really feels that “stress” is making us sick, just as a bug would when we get the flu. The difference is with “stress” we make ourselves sick just as we do when we worry about something. The events do not make us sick, the way we interpret the event does.

Once we understand that what we are really dealing with is emotion, we have a better chance to successfully deal with “stress”. Some may question what is the difference between stress and emotions? The difference is we understand emotions; we have been dealing with them all our life. For instance, if you lost someone close you would be very upset and it may take various amount of time to get over the loss depending on your way of responding and the importance of that person in your life. Eventually, you will need to get on with your life and learn to control your loss. Often when emotions might get us into trouble, we realise we have to control them. When you feel “stressed” to the point where you are losing control, it is getting you into trouble. Another point worth making is that one of the most important factors in feeling “stressed” is the lack of control we feel over a situation (e.g. noise can be stressful only if we have not control to stop it). We know we can control emotions, but we do not feel we can control “stress”, perhaps because we are told by “experts” that “stress” is inevitable and part of every day modern life. So in a way, the more you believe “stress” exits the more likely you are to be “stressed”.

The Individual and Stress

Are we more likely to suffer from stress depending on who we are? In other words, are we "predisposed" to stress?

_A Type Behaviour:_ Extremely competitive, strive for achievement, have sense of urgency, aggressive and impatient. Usually overachievers are those who cannot do anything just for its own sake.

_B Type Behaviour:_ Relaxed, laid back, realise that there is more to life than getting excited about what they regard as futile pursuit.
Which would be the best behaviour type to have while working and studying?

Do events cause us stress?

Is stress something totally external? Are events in our environment the things that cause us stress? To what extent will stress impact on your studies?

To accept that events are stressors would mean that events have the capacity to stress you regardless of how you respond to them. It also means that events come with the built-in characteristic of “stressing” you, in the same way as we could say that a germ has the built-in characteristic of “infecting” you. The difference is that whilst we can try and avoid getting infected sometimes it’s beyond our control, and no matter how much we don’t want to be infected it is simply inevitable. On the other hand, if we do not want to be “stressed” we will not be.

Approaches to stress

Use the stress of undertaking part-time studies to demonstrate the following approaches (have students provide examples):

**Biological approach:**

**Environmental approach:**
Effect of various types of events, called stressors, on the individual. Looks at good and bad stressors.

**Psychodynamic approach:**
Stress and anxiety caused by unconscious motives and conflicts with the person.

**Cognitive approach:**
Focuses on the perceptual nature of stress. How we perceive various events and its resulting effects on individuals.

Characteristics of stress

As discussed earlier, stress was lessened when people knew something was going to happen even if they have no control over the situation occurring. Discuss the following characteristics of stress and draw on students’ personal experiences to demonstrate each characteristic. Other characteristics that effect the way we perceive stress include:
CONTROL OVER DURATION

If people feel they can terminate a stressful situation, they are less likely to be affected by it.

COGNITIVE EVALUATION

The individual appraisal of a situation is often more important that the objective facts of that situation. What the situation means to the person is what seems to matter most.

FEELINGS OF COMPETENCY

Confidence in one's ability to handle a potentially stressful situation has a bearing on the severity of the stress. Fire fighters, policemen and doctors are trained to deal with such situations.

SOCIAL SUPPORTS

The emotional support and concern of other people can make stress more bearable.

Managing stress

How do most people attempt to manage stress? Have students discuss the likely impact of using the following strategies to cope with their part-time studies:

DEFENCE MECHANISMS

Three major points should be understood about defence mechanisms which were introduced by Freud:

1. They are hypothetical constructs. That is they do not really exists but they are useful ways of summarizing ways in which people attempt to cope with stress, anxiety, conflict and frustration.

2. Whilst labelling a person's behaviour may provide a useful description, it must be remembered that labels do not explain behaviour.

3. Used in moderation, defence mechanisms can be a useful tool to ride over rough spots until we can deal more effectively with the stressful situation. In their more extreme and dominant form, they indicate some personality maladjustment.
DENIAL
When reality is too unpleasant to the individual.

REPRESSION
Events that are too painful are excluded from conscious awareness. Sometimes repression can result in amnesia.

RATIONALISATION
Is when a person says “I don't care because I did not really want to do it”. It is also what people do when they blame external circumstances for their failures.

REACTION FORMATION
This is when an individual can conceal a motive from themselves by giving strong expression to the opposite motive.

PROJECTION
Occurs when we attribute to others traits that we in fact possess ourselves.

INTELLECTUALISATION
Is an attempt to gain detachment from an emotionally threatening situation by dealing with it in an abstract, intellectual way.

DISPLACEMENT
A motive that cannot be gratified in one form is directed into a new channel. We may display our anger toward someone who had nothing to do with it. (Kick the dog, for instance, when we are angry with work)

Conclusion
Feelings and emotions play an important role in human life but the suitability of their display depend on what is socially acceptable or not. Some of the emotions may be innate but it seems that the majority are learned or at least that the factors that bring the emotions are culturally learned. Whether the physical precedes the mental component is not the most important thing to understand about emotions. It would seem that understanding where emotions fit in every day life is a more important issue as emotions have the potential to be either beneficial or detrimental to human life. Realising which ones are beneficial and which ones are detrimental, and under what circumstances, would seem to be the key to that understanding. Our ability to cope with stress (particularly with stress associated with part-time studies) can be significantly improved if we understand that it is not the situation or circumstances of an event that cause us to be stressed, it is more the result of the way in which we perceive that situation.

(NB: Please complete the delivery evaluation and return to the faculty office)
Characteristics of Stress

CONTROL OVER DURATION
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COGNITIVE EVALUATION
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The emotional support and concern of other people can make stress more bearable.
Managing Stress

DEFENCE MECHANISMS
Three major points should be understood about defence mechanisms which were introduced by Freud:

1. They are hypothetical constructs.
2. Labels do not explain behaviour.
3. Not all defence mechanisms are bad.

DENIAL
When reality is too unpleasant to the individual.

REPRESSION
Events that are too painful are excluded from conscious awareness. Sometimes repression can result in amnesia.

RATIONALISATION
Is when a person says "I don't care because I did not really want to do it". It is also what people do when they blame external circumstances for their failures.
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A motive that cannot be gratified in one form is directed into a new channel.
We may display our anger toward someone who had nothing to do with it.
(Kick the dog, for instance, when we are angry with work)
Appendix D.5

New Student Support Program Level II: Change and Relationships Teaching
Guides for Delivery to Program 3 Students
Relationships and the Impact of Change

INSTRUCTIONS TO TEACHERS OF PROGRAM GROUP 3 PARTICIPANTS

Remind the student that this is more an information and discussion session. Note taking is not necessary; it is more important that the student understands the implications of change and its affects on relationships. In particular, allow the students the opportunity to consider what work, family and social relationships have been affected by their participation in part-time studies. Relate these to effects of individual differences and how personality traits may be implicated in persistence patterns.

Provide students with the accompanying handouts to keep things moving along. Numerous exercises have been included in the lesson plan however, only do as many as time permits. Use the interaction of change and relationships as a step process to highlight implications of individual differences.

Encourage the students to explore their responsibility to managing the change process and the effects of this on work, family and social relationships and discuss how effects may be reciprocal. It is advised to deliver each of the three components (change, relationships and individual differences) in 3 x one half-hour blocks over three weeks. Further resources may be obtained from the faculty office as required. There is a significant amount of material provided for presentation to the class, however, it is particularly important that students understand the implications of the issues and concepts rather than the theoretical postulates behind them. Use workplace examples in the main to support your points.

Session Outcome: At the end of this session, participants should be able to

**Change**

- identify problems likely to occur in work, family and social relationships connected to changed circumstances (i.e. attending part-time studies for the first time)

- identify strategies effective in dealing with change

- use steps for handling change effectively

- relate change strategies to individual participation in part-times studies
Relationships

- list qualities that contribute to effective relationships
- identify three factors that can adversely affect relationships
- discuss the importance of effective relationships regarding the workplace, the family and social situations
- link the affects of change to work, family and social relationships

Individual Differences

- discuss varying personality types
- identify that differing theories are used to explain personality
- discuss the stability of personality
- discuss the interaction of change, relationships and individual differences
- identify the relationship of personality to persistence

Learning Resources

- Whiteboard and coloured pens
- Information Sheet
- OHT provided
- Activity and student handouts provided
Handling Change

Introduction

People are often very resistant to change. It is necessary for them to see the benefits of any change for them to accept it. Individuals would be more successful if they work hard at establishing the need and implications of a change before trying to introduce one.

This generally means that the one has to be prepared to change too; be open minded about developments and new ideas and how everyone involved in the change process will perceive circumstances differently.

Establish the need for change

Imagine a situation where the owners are considering automating their firm. Their staff have gotten used to using electronic typewriters and photocopies but computers are still a big mystery to them. Even the owners are still inclined to think of computers as ‘new-fangled things’ but they realise that if their company is to maintain credibility in the workforce they need to update their equipment.

The owners are nervous about the change but they are prepared to change their attitude. Now it is just a matter of implementation, or is it?

Recognise the stages that people go through when reacting to change

There are five stages people go through to when reacting to change. They do not go through these changes easily, at the same time or at the same rate.

The five stages are:

**Stage 1 - Denial**
People deny the need for change. ‘We have always done things this way’. ‘You will never make it work’.

**Stage 2 - Defence**
People display anger, depression, frustration at the unfairness of the change. ‘If they think they can expect any improvement after this, forget it’. ‘This is hopeless. This place is in a real mess’.

**Stage 3 - Discarding**
People begin to let go and look forward to the future. ‘Well, here it is - we are stuck with it - here’s how I see it’.
Stage 4 - Adaptation
People work out ways of coping with change and progress is made. ‘Maybe the boss’ new idea is a good one. How can we make it work here?’ ‘Is there a better way of making this work?’

Stage 5 - Internalisation
People actively participate in the change, make contributions and suggestions, initiate work on their own and come to see the change as the ‘way it is’. ‘This new procedure is fantastic’. ‘I can’t understand what all the fuss was about’.

Hold formal/informal discussions
The owners could begin by establishing a need for change. There could be informal and formal discussions about the capabilities of computers, how they can be used, how much time they would save etc. They could analyse what the change means.

Encourage objections
However, if the change is to be a smooth one, staff need to believe that they will benefit. Staff need to feel part of the change and happy about it. Many of the staff may resist the change because they may feel threatened. They should be given the opportunity to voice their fears; eg. Will I be able to use a computer? If the computers are going to save time, will I lose my job? Will new staff be brought in and the old staff made redundant? Will I be capable of learning how to use a computer? Will anyone train me? What if I can’t learn quickly enough? Will I be considered too old? Will I be considered too young and inexperienced? Will the same work output be expected of me once the computers are installed? What if I forget what I am supposed to do?

Staff could be asked for their ideas on how the change could be handled. Informal discussions could be held periodically. Suggestions could be given about sending some of the staff for training while the computers were being installed.

Negotiate where necessary
Perhaps the supervisor could negotiate with staff members about who would go on training and who would be prepared to remain as a skeleton staff to oversee the installation and handle routine daily matters. Their training could take place in the next week.

Provide adequate information about the change
Talks could be arranged for the staff by computer experts to inform them about software packages, database packages, spreadsheet packages, printers, networks, electronic-mail and teleconferencing. Hopefully, an atmosphere could be created in which the staff began to look forward to the arrival of computerisation.
Monitor the change

The owners (or their appointees) should constantly monitor the change process and be prepared to discuss any problems and answer any questions.

Reinforce the change

At all times, they should try to reinforce the positive aspects of the change in order to maintain a positive atmosphere. Providing staff with information on the benefits of the change helps to reinforce the positive aspects of the change.

What changes are involved in becoming a part-time student?

Apart from significant changes that occur for the individual (e.g. increased time, study and effort demands) a number of other stakeholders are effected by this change. These include the employer and colleagues within the workplace, our families, and our friends.

Use the overhead to explain the ‘Differing Perspectives of Change’ exercise. Have students break-up into teams and complete the ‘Differing Perspectives of Change’ surveys. Allow team leaders to present their conclusions to class and support open discussion on each of the issues presented.

Conclusion

What is vital to handling change is that those involved feel that it is not something that has been imposed on them without consideration of their feelings or opinions. They must feel involved and that they have contributed in some way to its implementation. The next session examines how we can build and maintain effective relationships through the change process.
Steps for handling change

- Establish the need for change
- Recognise the stages people go through
- Hold formal/informal discussions
- Encourage objections
- Negotiate where necessary
- Provide adequate information about the change
- Monitor the change
- Reinforce the change
Differing Perspectives of Change

Your team is completing this list of questions as ____________________.

1. What was the change?

2. Was the change handled well? Why? Why not?

3. Were you made to feel part of the change? Yes? No? In what way?

4. Were any formal or informal discussions held?
5 Were you given the opportunity to ask questions and discuss any problems?

______________________________________________________________________________
______________________________________________________________________________

6 What problems did you experience?

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

7 Were you able to negotiate? Why? Why not?

______________________________________________________________________________
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8 Were you asked for suggestions and ideas? In what way?

______________________________________________________________________________
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9 How was the change monitored?

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
10 How was the change reinforced?

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________

11 What was your attitude towards the change? Why?

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________

12 Give any other opinions you may have about the change?

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________

13 Would you have handled the change differently? How?

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________
Differing Perspectives of CHANGE
Undertaking a Part-time Study Program

Break up into four teams.

➢ Team 1 will answer the ‘Handling Change’ list of questions as the new ‘student’ undertaking a course of study.

➢ Team 2 will answer the ‘Handling Change’ list of questions as the ‘partner’ of the student undertaking a course of study.

➢ Team 3 will answer the ‘Handling Change’ list of questions as the ‘circle of friends’ of the student undertaking a course of study.

➢ Team 4 will answer the ‘Handling Change’ list of questions as the ‘employer’ (or direct supervisor) of the student undertaking a course of study.

• Use the overhead slides and pens provided.

• Team members will need to agree on what responses will be recorded.

• Select a team member to record responses, and another to present the outcomes to the class.

• In small groups, prepare one stage of the change process then share your conclusions with the whole group.
Effective Relationships

Qualities that contribute to effective relationships

Some qualities that contribute to effective relationships are:

- good listening skills
- non judgemental attitudes
- genuine care and concern
- empathy
- respect
- trustworthy
- honesty
- non aggressive behaviour

Three factors that can adversely affect effective relationships

1. Personal factors - individual attitudes, prejudices, different ways of thinking, different cultural beliefs
2. Feeling factors - individual feelings such as boredom, anger, feeling unfairly treated etc.
3. Relationship factors – individual dislike of other

Effective relationships are important in workplace, family and social situations

In a work situation for example, if too much time is spent on settling individual differences caused by the above three factors, then valuable time and money will be lost. Effective relationships are important in a workplace situation for:

- greater productivity
- product quality
- customer service
- reduced staff turnover and absenteeism
- more effective problem solving and better decision making
- fewer industrial disputes
- creating a non-threatening environment in which to work
- workers negotiating for a greater variety of tasks, more challenging jobs and multi-skilling
- better relationships among team members
- intrinsic motivation by all employees
Discuss the ways in which effective relationships are important in:

- Work;
- Family; and
- social situations.

Brainstorm what other personal qualities would contribute to maintaining effective relationships at work, and with family and friends.

Refer and have the class complete the ‘Family Relationships Exercise’.

Can the same strategies be used to deal with relationship problems that occur in the work and social areas?

Do individual differences in personality type make these strategies more or less likely to work?

**Conclusions**

Maintaining effective relationships is important in all facets of life and to all concerned. Relationships are most vulnerable during the process of change; where for example, due to a substantial commitment of time and effort to attend part-time studies, the demands of lifestyle changes can have a negative rippling effect between the individual and others at work, in the home, and socially. The next session will investigate what personality characteristics would better handle change, and examine what personality characteristics are likely to better manage the effects of change on work, family and social relationships?
The following qualities contribute to effective relationships:

- good listening skills
- nonjudgemental attitude
- genuine care and concern
- empathy
- respect
- trustworthy
- honesty
- non aggressive behaviour

Other qualities:
Family Relationships Exercise

Marie and Ray have been married for three years and have a 16 month old daughter. They are renovating their first home together, and although much had been accomplished in the first two years, work on the house has slowed because of Ray’s new commitments to his part-time studies. Marie has waited patiently for an appropriate time to raise the issue, but a visit by her family from overseas has brought the matter to a head.

Ray is studying for an upcoming exam when Marie mentions the renovations. Ray becomes angry and asks Marie why she makes it so hard for him to meet the demands of work and study. He accuses her of being short-sighted by not being able to see the future benefits for their family that will result from his commitment to study now. Ray storms out of the house making threats about their separation.

1 Help Marie identify if the breakdown is the result of:

A. Personal factors (attitudes, prejudices, different ways of thinking, different cultural beliefs)

B. Feeling factors (boredom, anger, feeling unfairly treated)

C. Relationship factors (dislike of person/people)

2 What could Ray do in preparation of the demands of heavy study periods in the course?
Appendix D.6

New Student Support Program Level II: Individual Differences Teaching Guide for Delivery to Program 3 Students
Individual Differences

INSTRUCTIONS TO TEACHERS OF PROGRAM GROUP 3 PARTICIPANTS

Continue to reinforce for the student that this is more an information and discussion session. Note taking is not necessary; it is more important that the student understands the implications of individual differences relating to their participation in the study program. In particular, allow the students the opportunity to consider the importance of individual differences in the higher education experience, and how this will be different for everyone.

Provide students with the accompanying handouts to keep things moving along. Numerous exercises have been included in the lesson plan however, only do as many as time permits. Relate individual differences to the material covered to date (e.g. self-esteem, feelings and emotions, and change and relationships.

Encourage students to explore the benefits of seeking assistance and support with a dropout crisis. It is advised to deliver the material for individual differences in a one hour block, then immediately follow this with a half hour discussion of the intervention design for Program 3 participants. Further resources may be obtained from the faculty office as required.

Session Outcomes: At the end of this session, participants should be able to

- Discuss the concepts of ability and intelligence
- Define personality
- Discuss the influence and implications of individual perceptions and motivations; learning styles and preferences; values, attitudes, beliefs and prejudices; heredity; and culture
- Demonstrate why individuals are different
- Relate the personal and social implications of individual differences to persistence in study
- Understand the importance of seeking assistance to persist in studies
- Understand the benefits of support during a dropout crisis
- Understand the consequences of dropping out of studies
Learning resources

- Whiteboard and coloured pens
- Butcher’s paper
- Information sheets
- OHT provided
- Activity list provided

Introduction

Over the past few weeks we have been able to see that although people are similar in many ways, they can be very different in many other ways. Concepts we have examined include levels of confidence, self-image and self-esteem, and the different ways that people can feel and the way in which they might express their emotions. Another area of individual differences relates to characteristics such as ability, intelligence and personality.

Ability

This refers to the aptitude/skill that an individual has for a particular task, type of work etc. Encourage students to discuss their individual abilities – real or perceived.

Intelligence

Discuss the ‘Intelligence Quotient’ and average population measures. Make reference to the fact that measuring IQ requires extensive testing of an individual across many conceptual areas, and that many believe IQ scores to be unreliable. Have members of the class discuss what they consider to ‘intelligence’.

Personality

Personality is defined as the characteristic patterns of behaviour and modes of thinking that determine a person's adjustment to the environment.

Discuss the potential influence and implications of the following on personality development in our society:

- Individual perceptions
- Individual motivations
- Heredity
- Culture
- Individual learning styles and preferences
- Individual attitudes, values, beliefs and prejudices
Demonstrate Individual Differences

Focus discussion on the differences between class members regarding their values, attitudes, beliefs and prejudices. Are we different to each other because our values, attitudes, beliefs and prejudices are:

- Personally ours
- Built up from life experiences
- Usually highly cherished
- Sometimes dependent on the era in which we grew up
- Often influenced by prosperity or poverty
- Either optimistic or pessimistic
- Dependent on previous learning or schooling, and

Very definitely influenced by our:

- temperaments
- cultural backgrounds
- religious upbringing
- role models
- good and bad past experiences

Although there are many theories available to explain these differences between us as individuals (e.g. biological, sociological, trait etc.), for the present exercise we can say that who we are is very much dependent on our personal experiences, choices and life opportunities. Individualism therefore impacts in many areas of our lives. One particular area of interest for individual differences is higher education, or more precisely, why some students continue in their educational careers and why others do not.

Student attrition

Student attrition in higher education is just one of those specific situations when many people have decided not to continue a certain course of action for a multitude of reasons. Before looking at the possible reasons people give, it may be useful to look at how the process starts. People at a given time in their life decide to undertake a course of study. They do so for a host of reasons. It may be because they want to eventually start work in a new or different field, they may just want to gain more knowledge, but ultimately their decision may have been influenced by others such as parents, partners, family, peers or employers.

- **Student/Institution interaction.** The attraction that various institutions hold for students will be dependent on many factors such the type of studies they offer, their culture, their formal and informal policies, the support they offer students, and their standard of teaching. The prestige of an institution is probably
reflected in the public perception of these characteristics. Ultimately, there is an interaction between individual students and particular institutions. The match is not always perfect. Sometimes the institution is not a first choice. At other times, it is the only one offering a particular course, or perhaps the only institution prepared to enrol the student. Perfect or not, the match creates a unique interaction between each student and all the various facets of the institution that they end up attending.

- **Social implications.** All of this, however, does not happen in a vacuum. Other elements of social life will come to compete with studies. Some of these may, in the short term at least, seem much more attractive than the daily grind of studying. A reduced social life is often the price most students perceive they have to pay to succeed in their endeavour. The social needs, or at least their beliefs about the importance of such needs, often give students the impression that they are giving up something in order to achieve their original goal. These social needs are prevalent in many aspects of studying. Everyone, consciously or not, study for a social reason. To have a better education is usually socially recognised and has many other social implications and expectations. To many people education is often synonymous with intelligence. To others there is the hope that it will result in a better paid or more prestigious employment, which itself has social value. At the other end of the spectrum, some people will undertake a course of study in order to develop as a person, others will enrol into a new course with their only purpose being to try and improve their social life.

- **Dropping out.** The non-fulfillment of these various aims could easily result in students dropping out in order to avoid the negative social implications and when asked about their reasons for leaving, students will give either real or rationalised reasons. Rationalised reasons are likely to emerge when the student does not understand the real reasons or when these reasons are too difficult to accept socially. In some situations, students after having failed (or perceiving that they may fail) some part of course may cease their studies. Their reasons may vary from having lost confidence in and experienced lowered self-esteem about their ability to continue, lengthening an already long process, or simply making see it as more costly in time or money to continue.

  - Have students discuss their individual perceptions of continuing in the current studies. Ask if anyone has considered withdrawing and why?
  - Use the following section regarding ‘Asking for Help’ to demonstrate how appropriate support at a critical dropout time may make all the difference.

**Asking for Help**

It might be that you come across a problem half way through the course and suddenly become aware that you are uncertain as to what you should do next. If you expect that you might withdraw from your course, simply hoping that everything will turn out alright will usually result in you dropping out. At this point it is vital to talk to someone
who understands your problems. Remember, even those who have the highest and most extensive qualifications have thought of dropping out at least once in their academic careers. Everyone needs help at some time and everyone should be prepared to ask for help when it is needed.

The advantages of asking for help include:

- You will learn that you are not alone
- You will understand that others have been where you are right now and have managed to get over the most difficult of hurdles
- Advisors may help you to clarify what is required to improve circumstances
- Advisors may provide options that you hadn’t considered
- Advisors may provide direction to services or support of which you are not aware
- Advisors may provide guidance for appropriate goal setting and identify manageable tasks for short and long term goal achievement
- Advisors can help you identify your rights entitlements

Therefore, if people do not ask for help when they need it, and subsequently drop out as a result, there are many disadvantages including a potential for:

- Feelings of failure
- Low esteem and confidence
- A poor academic record that cannot be changed
- Loss in money, time and effort
- A reduction in career and employment prospects

Refer to Research Program Overview for Participating Teachers – P3

Have students discuss the strategies of the intervention design for Program 3 regarding how they might help to avoid student withdrawals.
Personality

Personality is defined as the characteristic patterns of behaviour and modes of thinking that determine a person's adjustment to the environment.

Discussion

Discuss how the following have the potential to influence personality development in our society:

- Individual perceptions
- Individual motivations
- Heredity
- Culture
- Individual learning styles and preferences
- Individual attitudes, values, beliefs and prejudices
Demonstrate Individual Differences

Are we different to each other because our values, attitudes, beliefs and prejudices are:

- Personally ours
- Built up from life experiences
- Usually highly cherished
- Sometimes dependent on the era in which we grew up
- Often influenced by prosperity or poverty
- Either optimistic or pessimistic
- Dependent on previous learning or schooling, and

Very definitely influenced by our:

- temperaments
- cultural backgrounds
- religious upbringing
- role models
- good and bad personal experiences
Student Attrition

- Institution/Student Interaction
- Social Implications
- Dropping Out

Advantages of Asking for Help include:

- You will learn that you are not alone
- You will understand that others have been where you are right now and have managed to get over the most difficult of hurdles
- Advisors may help you to clarify what is required to improve circumstances
- Advisors may provide options that you hadn’t considered
- Advisors may provide direction to services or support of which you are not aware
- Advisors may provide guidance for appropriate goal setting and identify manageable tasks for short and long term goal achievement
- Advisors can help you identify your rights entitlements
Disadvantages of Not Asking for Help include:

- Feelings of failure
- Low esteem and confidence
- A poor academic record that cannot be changed
- Loss in money, time and effort
- A reduction in career and employment prospects

Discussion

How will the strategies for dropout intervention help those students who might be considering withdrawing from their studies?
LIST OF REFERENCES


Caracelli, V. J. (1986). *The career goals of re-entry women: A not so hidden agenda.* (ERIC Document Reproduction Service No. ED269584)


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Talbot, G. L. (1987). *Student motivation and educational life-skills: Fostering positive attitudes for learning to learn through the acquisition of feedback skills*. Champlain Regional College, St Lawrence: Quebec Department of Education. (ERIC Document Reproduction Service No. ED285063)


THE INFLUENCE OF SELF-CONCEPT ON NON-TRADITIONAL STUDENT PERSISTENCE IN HIGHER EDUCATION

VOLUME I

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A thesis submitted to The University of Western Sydney in fulfilment of the requirements for the degree of Doctor of Philosophy.

July, 2004
DEDICATION

This thesis is dedicated to my wife, Rachel. Thank you for your unflinching patience and understanding. You supported this achievement for me as though it was your own. You listened with unwavering interest to it all – the concepts, the statistics, the outcomes, and even the nonsense when I rambled. You allowed me to WANT for nothing over these many years, continuing to put my needs above all else and at all costs. You shouldered potential interference from every quarter and reminded me of my commitment when I created that interference myself. I owe no other like I owe you, and this is a debt that I intend to repay ten-fold. For the first time in my life I realise the true sentiment behind the words, “It could not have been done without you.” With all my love.
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A special thank you to Kate Johnson and Ferina Khayum for always being there to provide assistance and support – nothing was ever too much trouble.

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To my father who convinced me I was worth the effort and to my mother who waited as long as she could; I know this accomplishment would make you both proud.

To my sons Woody and Mason, thank you both for being so understanding and accepting for so long.
STATEMENT OF AUTHENTICATION

The work presented in this thesis is, to the best of my knowledge and belief, original, except as acknowledged in the text. I hereby declare that I have not submitted this material, either in whole or in part, for a degree at this or any other institution.

[Signature]

(Signature)
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# Chapter 3

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ABSTRACT

Despite numerous interventions, Australian Technical and Further Education (TAFE) students continue to display extremely high rates of attrition. Typically these students are mature-aged and work full-time while studying part-time. The mature-age part-time student is considered by attrition researchers to be at the extreme end of high-risk for non-persistence in courses, having intrinsic characteristics (e.g. a long period of absence from the educational environment) and an exposure to external influences (e.g. family and work commitments) that generally make them vulnerable to dropout. The enhancement of a positive self-concept is widely valued as an important educational goal in and of itself and as a means for facilitating other desirable educational outcomes such as persistence. Whilst there have been recent advances in self-concept theory and research, studies examining the role of self-concept in relation to attrition remain rare.

The primary purpose of the present investigation was to capitalize on recent advances in self-concept theory and research to identify the relation of the self-concept construct to attrition in the TAFE setting and the nature of self-concept for working adults.

The current study comprised three distinct study components. The purpose of Study 1 was to identify a psychometrically sound measure of self-concept for TAFE students, elucidate the nature of self-concept for TAFE students, and test the extent of self-other agreement between students and their significant others on self-concept domains. A total of 1193 TAFE students completed an extended self-concept instrument. Results based upon CFA demonstrated that this was a valid and reliable multidimensional self-concept measure for TAFE students.
The purpose of Study 2 was to examine the effectiveness of a suite of interventions designed to enhance self-concept and persistence in TAFE. Mature-age intact class groups of TAFE students (N = 532) were randomly allocated to a control group or one of three intervention groups. All three intervention groups received a base intervention of self-exploration of self-concept during the first six weeks of their TAFE course. Program group 1 received solely the base treatment. Program group 2 received a further treatment which involved familiarising them with self-activated assistance available in TAFE for dropout support. Program group 3 participated in an intervention whereby an institution-activated intervention program was initiated on identifying students at risk of dropping out. Students who received the interventions displayed statistically significant higher persistence rates compared to the control group. These results suggest that self-concept interventions may be associated with increased persistence rates.

Study 3 comprised a qualitative approach utilising semi-structured interviews to examine student self-reports of reasons for considering withdrawal from their program of study. A total of 27 continuing and 15 withdrawn students participated in the study. The results from this aspect of the investigation suggest that self-concept influences TAFE students’ decisions to continue or withdraw from their studies.

These findings provide support for: the salience of the self-concept measurement instrument used in this investigation and the research and theory on which it is based; the effectiveness of the interventions used in the present investigation to enhance persistence; and the important role of self-concept in relation to attrition.
THE INFLUENCE OF SELF-CONCEPT ON
NON-TRADITIONAL STUDENT PERSISTENCE IN
HIGHER EDUCATION

VOLUME II

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A thesis submitted to The University of Western Sydney in fulfilment of the
requirements for the degree of Doctor of Philosophy.

July, 2004
STATEMENT OF AUTHENTICATION

The work presented in this thesis is, to the best of my knowledge and belief, original, except as acknowledged in the text. I hereby declare that I have not submitted this material, either in whole or in part, for a degree at this or any other institution.

.................................................................

(Signature)
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