Information-processing and Leadership in School Principals: Cognitive-Experiential Self Theory and Transformational Leadership

Tom Cerni


A thesis presented to the University of Western Sydney in fulfillment of the requirements for the degree of Doctor of Philosophy (Psychology)

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ACKNOWLEDGMENTS AND DEDICATION

Beyond the documented findings discussed in this thesis I have learned two important lessons about completing a Ph.D. on a part-time basis. First, that the completion of a Ph.D. is not achieved in intellectual, emotional, or spiritual isolation. And second, the quality of the supervision process and family support strongly influences the quality of the outcome.

Initially, I want to express my appreciation to Professor Emeritus Seymour Epstein, University of Massachusetts. His generous support of this research endeavour, and willingness to share his thoughts about the relationship between the cognitive-experiential self theory and leadership, has been greatly appreciated. I would also like to express my gratitude to Professor Epstein and his wife Alison for their warm welcome and generous hospitality during my visit to the United States in 2005 as part of the NSW Premier’s Minter Ellison Educational Leadership Scholarship.

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It is to my family that I dedicate this thesis.
STATEMENT OF AUTHENTICATION

The work presented in this thesis is, to the best of my knowledge and belief, original and a result of my own research endeavor. I hereby declare that I have not submitted this material, either in full or in part, for a higher degree at any other institution.

……………………………………

Tom Cerni
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ABBREVIATIONS

CEST  Cognitive-experiential self theory
Rational  Analytical-rational system
Experiential  Intuitive-experiential system
REI-L  Rational Experiential Inventory (Long Form)
REIe  Rational Experiential Inventory- (Experiential)
MLQ (5X)  Multifactor Leadership Questionnaire
ROCI-II  Rahim’s Organizational Conflict Inventory II
NCSL  National College of School Leadership
NIQTSI  National Institute for Quality Teaching and School Leadership
AITSL  Australian Institute for Teaching and School Leadership
ABSTRACT

Transformational leaders increase job satisfaction and wellbeing among workers. This thesis proposes that leadership style is influenced by both the rational and experiential systems put forward by Epstein (1998b) in his cognitive-experiential self theory (CEST). Study one examined the relationship between the CEST information-processing systems and transformational leadership among experienced school leaders (N = 183). The rational system had a strong positive correlation with transformational leadership whereas the experiential system was weakly correlated with transformational leadership. Study two (N = 126) examined constructive thinking and transformational leadership. Global constructive thinking, emotional coping, and behavioural coping all had strong positive correlations with transformational leadership. The results of studies one and two showed that school principals who rated themselves as transformational leaders obtained high scores on the rational system and the constructive factors of the experiential system. These results provided a theoretical foundation for the remaining three studies and impacted on the theoretical framework for the CEST-transformational leadership model.

Studies one and two were correlational in design and consequently were limited in explaining cause and effect. In response to this limitation, study three used a pre-test, post-test control-group design to test whether changes to information-processing systems could bring about changes in leadership style. Results showed that there was a significant difference between the pre-test and post-test transformational leadership scores for school principals in the intervention group, as rated by their school staff. The control group remained unchanged. Qualitative results indicated that the school principals in the intervention group became more conscious and reflective about their leadership practice. Thus study three provided
tentative evidence that changing information-processing styles could bring about changes in leadership style.

With the results showing a positive connection between information-processing and transformational leadership (Studies one-three) the next step was to establish if the rational system and constructive elements of the experiential level could predict teachers’ job satisfaction and student learning outcomes. Study four (N = 88) showed a weak connection between principals’ information-processing and both teachers’ job satisfaction and students’ learning outcomes.

Leaders who exercise transformational leadership may also be required to effectively manage conflict in the organization, and this is why study five (N = 426) examined the relationship between information-processing and conflict-handling styles using an undergraduate student sample. The rational system, experiential system and constructive thinking had significant positive relationships with both the integrating and compromising conflict-handling styles. The rational system had a positive relationship with the dominating conflict-handling style. The experiential system and constructive thinking had a positive relationship with the obliging conflict-handling style.

The results of the five studies provided empirical support for a CEST-transformational leadership model. Implications for educational leadership at the theoretical and practical level are discussed. Establishing a positive connection between information-processing, transformational leadership, and the choice of conflict-handling styles appears to promote effective school leadership that, in turn, is thought to influence teachers’ job satisfaction and students’ learning outcomes.
CHAPTER 1: INTRODUCTION

The chapter introduces the reasons for studying cognitive information-processing and leadership among leaders in general, and school principals in particular. Chapter one provides an outline of the main theories of information-processing and leadership that are examined in this thesis. After the theoretical outline, reference is made to leadership in education and issues and gaps in our present knowledge, leading to the rationale for the five empirical studies presented in this thesis.

Whether it is in education or business, leaders may experience differences between what they think and how they feel (Leithwood, 1994; Pacini & Epstein, 1999). The key to successful leadership may lie in the intersection between intellect and emotions (Buono, 2003; Goleman, Boyatzis & McKee, 2002a) as both influence what leaders do (Leithwood, 1994). The traditional Western view considers intellect and emotions to be separate and contradictory phenomena. According to the cognitive-experiential self theory (CEST), intellect and emotions are controlled by a rational-analytical and an intuitive-experiential system (Epstein, 1998b). Within CEST, Epstein suggests that all people operate by using two parallel, bi-directional, interacting systems: the rational-analytical system and the intuitive-experiential system (Epstein, 2000). The two systems are abbreviated as rational and experiential throughout the thesis. In addition, Epstein uses the terms systems and minds interchangeably. The intelligence of the rational system can be measured through IQ tests, and essentially involves the ability to solve abstract problems and make logical connections (Epstein, 1998b). The intelligence of the experiential system, on the other hand, involves practical, social, and emotional behaviours (Epstein, 1998b). If leaders are better able to understand their own rational and experiential systems and
how these systems interact this may lead to the development of more productive leadership outcomes.

Although there are numerous theories of leadership the Full-Range Leadership Theory (FRLT; Antonakis, Avolio, & Sivasubramaniam, 2003) was selected for this thesis because some of its factors appear to be connected and influenced by the CEST information-processing systems. The FRLT represents nine single-order leadership factors comprising of five transformational factors, three transactional factors, and one non-transactional laissez-faire factor. Eight of the leadership factors are about behaviours, (e.g., “waits for things to go wrong before taking action”) and one concerns attributes, (e.g., “instils pride for being associated with them”; Elliott, 2000). Transactional leadership “emphasizes the transaction or exchange that takes place among leaders, colleagues, and followers” (Bass & Avolio, 1994, p.3). Transactional leadership is typically presented through the setting of objectives and through monitoring and controlling outcomes (Antonakis et al., 2003). On the other hand, transformational leadership sets out to “motivate others to do more than they originally intended and often more than they thought possible” (Bass & Avolio, 1994, p. 3). Transformational leaders differ from transactional leaders by not only recognizing the followers’ needs but by engaging the full person in an attempt to develop them as leaders (Bass & Avolio, 1997).

To understand the potential influence of the rational and experiential system on transformational and transactional leadership, this thesis examines the connection between two well-established theories of human behaviour, that is, the Cognitive-Experiential Self Theory (CEST; Epstein, Pacini, Denes-Raj, & Heier, 1996; Pacini & Epstein, 1999) and the Full-Range Leadership Theory (FRLT; Bass & Avolio, 1994, 1997). A critical aspect underlying leadership styles may be the degree leaders
rely on, and are influenced by the rational and experiential systems. To date no research has examined the connection between the CEST information-processing systems and the FRLT. Specifically, these systems and styles of leadership are examined in an educational context.

Cognitive-Experiential Self Theory

According to Epstein (1998b), empirical research has shown that people are influenced by the rational and the experiential systems. The range of influence generated by each system can be minimal to almost complete dominance, depending on the context, person, and emotional involvement (Denes-Raj & Epstein, 1994; Handley, Newstead, & Wright, 2000). Further details of the comparative properties of the two modes of information-processing are outlined in Table 1.

Experiential System

From the perspective of CEST, the experiential system is intimately associated with affect: mood and emotions (Epstein et al., 1996). The experiential system learns directly from experience, has a long evolutionary history, and is capable of operating at both low and high levels of functioning. At the lower levels of operation, the experiential system can be viewed as being crude with a tendency to automatically, rapidly, effortlessly and efficiently process information (Denes-Raj & Epstein, 1994; Epstein, 1994, 1998b, 1998c).

The experiential system can process both simple and complex information (Epstein, 1994). Under many circumstances the experiential system solves problems more efficiently than the rational system (Epstein, Denes-Raj, & Pacini, 1995). At the highest levels, and especially when it interacts with the rational system, it has the capacity to be a source of intuitive wisdom and creativity (Bucci, 1985; Epstein,
1994). With reference to effective leadership, a Master of Business Administration (MBA) degree can help provide students with analytical skills and theoretical knowledge useful for a business career (Emmott, 2005). However to become a successful leader in an information-rich, turbulent business world, the student also requires maturity, wisdom and the ability to generate intellectual capital (Emmott, 2005; Jacobs, 2005). Effective leaders could develop these qualities by understanding the influence of the experiential system at the preconscious level and its potential influences on the rational system.

Rational System

The rational system, in contrast, to the experiential system, operates logically and mostly at the conscious level (Epstein et al., 1996). Unlike the experiential system, it is said to have had a brief evolutionary history and is seen as a deliberate, effortful, abstract system that operates through language. As with the experiential system, it has the capacity to operate at high levels of abstraction and with long-term delay of gratification (Epstein, 1994, 1998b). Nevertheless, because the rational system is effortful, methodical, demanding of cognitive resources, and relatively slow (Epstein, 1998a; Epstein, 2000) it may not be suited to dealing with large amounts of complicated information (Sadler-Smith & Shefy, 2004).
Table 1


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<td>1. Holistic</td>
<td>1. Analytical</td>
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<td>2. Automatic, effortless</td>
<td>Intentional, effortful</td>
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<tr>
<td>3. Affective: Pleasure-pain orientated (what feels good)</td>
<td>3. Logical: Reason oriented (what is rational)</td>
</tr>
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<td>4. Associationistic connections</td>
<td>4. Logical connections</td>
</tr>
<tr>
<td>5. Behaviour mediated by “vibes” from the past</td>
<td>5. Behaviour mediated by conscious appraisal of events events</td>
</tr>
<tr>
<td>6. Encodes reality in concrete images, metaphors, and narratives</td>
<td>6. Encodes reality in abstract symbols, words and numbers</td>
</tr>
<tr>
<td>7. More rapid processing: Oriented toward immediate action</td>
<td>7. Slower processing: oriented toward delayed action</td>
</tr>
<tr>
<td>8. Slower, and more resistant to change: Change with repetitive or intensive experience</td>
<td>8. Changes more rapidly and easily: changes with strength of argument and new evidence</td>
</tr>
<tr>
<td>11. Experienced passively and preconsciously: we are seized by our emotions</td>
<td>11. Experienced actively and consciously: We are in control of our thoughts</td>
</tr>
<tr>
<td>12. Self-evidently valid: “Experience is believing”</td>
<td>12. Requires justification via logic and evidence</td>
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Identifying differences in the kind and level of information-processing as it applies to leadership is what drives the present research. Different information-processing systems have their own advantages; for example, high scores on rational thinking were found to be associated with superior IQ, and low anxiety, stress, and depression (Epstein, 1998a, 1998b). On the other hand, high scores on experiential thinking have been associated with establishing secure relationships and with high behavioural coping (acceptance of others, optimism, and action-orientation) (Epstein, 1998c; Epstein et al., 1996).

In reality people who obtain high scores on both the rational and experiential processing have good interpersonal and intrapersonal adjustment (Epstein, 1998c). Examining both the experiential and rational systems could assist aspiring and current school principals gain insight about their leadership approaches. An in-depth description of both the rational and experiential systems, according to principles of CEST, is presented in the next chapter.

In addition to examining the relationship between leadership styles and information-processing, particular attention will be given to the influence of the experiential system. Most people are aware of the rational system because it operates at the conscious level; however, with the experiential system operating automatically, and at the preconscious level, people may be unaware of its influence (Epstein, 1998a). The rational and experiential systems have several advantages and disadvantages in how each one influence the other. The advantage of the rational system is that it has the capacity to understand the experiential system when thoughts surface into consciousness; however the experiential system cannot understand the rational system. The advantage of the experiential system is that it can influence the
rational system without the rational system being aware of that influence (Epstein, 2006). Perhaps this may explain why some people can solve complex technological problems, yet experience difficulty solving much simpler problems in living that are more important to their existence and personal happiness (Epstein, 2000).

Figure one illustrates the association between the two systems of information-processing and capacity to tap into conscious and preconscious levels of information-processing. S. Epstein (personal communication, October 27, 2005) pointed out that only the experiential system has the capacity to tap into the conscious and preconscious level of information-processing. The experiential system draws upon and is influenced at the preconscious level whereas the rational system operates at the conscious level. Although the rational and experiential systems can be in conflict with each other, it is hypothesized that the overlapping region between the two systems is an expandable region of intuitive wisdom and creativity (Bucci, 1985; Epstein 1994).

Given that the experiential system is responsible for influencing conscious thinking, including feelings and behaviour, it is worth investigating how constructive or destructive this system is in relation to leadership. Constructive and destructive thinking are theoretical components of the experiential system (Epstein et al., 1996). Constructive thinking is defined “as the degree to which a person’s automatic thinking, that is, the thinking that occurs without deliberate intention – facilitates solving problems in everyday life at a minimum cost in stress” (Epstein, 1998a, p. 26). For example, good constructive thinkers have a tendency to interpret new situations as challenges rather than as threats, and view issues positively but not to an unrealistic degree (Epstein, 1998a). The constructive components of the experiential system are: global constructive thinking, emotional coping, and behavioural coping
and their respective subscales. The destructive components are: personal superstitious thinking, categorical thinking, esoteric thinking, and naïve optimism (Epstein, 2001).

Figure 1. Association between information-processing and levels of consciousness.

Linking Information-Processing and Leadership Styles

In the educational setting school principals may benefit from understanding their leadership style, that is, are they more inclined to be transformational or transactional? When it comes to information-processing, to what degree are school principals likely to engage in, and value, rational and experiential processing? Obtaining these data will provide answers to the question of the kind of information-processing these leaders are most likely to use. In addition, it has the potential to reveal possible imbalances in reliance on either system that, in turn, could benefit from corrective experiences (Epstein, 1998b).
The growth of research into transformational leadership over the last decade has necessitated theoretical development and revision. However research appears to have settled into a dominant paradigm where the leading theories have increasingly converged and stabilized. Some consider this to be a mistake since knowledge about leaders’ behaviour and follower effects is still formative (Conger, 1999). The aim of this thesis is to extend the dominant leadership paradigm by examining the information-processing systems of leaders in the educational setting.

Transformational and Transactional Leadership

Research on transformational and transactional leadership has captured much attention since the middle 1980s (Bass, 1985a; Burns, 1978). Burns’s (1978) landmark book examined the behaviour of political leaders, noting that great leaders do more than satisfy their followers’ wants in exchange for support; they win allegiance by sensing and articulating followers’ deeper needs (Brandt, 1992).

Research suggests that the best form of leadership consists of both transformational and transactional factors (Bass, 1985a; Bass & Steidlmeier, 1999). Effective leaders are likely to use both transformational and transactional leadership at different times and with different followers, depending on the people and the situation (Robbins, Millett, Cacioppe, & Waters-Marsh, 1998). Transformational leadership augments the effectiveness of transactional leadership; it does not replace transactional leadership (Bass, 1997; Kanungo & Mendonca, 1996; Robbins et al., 1998; Waldman, Bass, & Yammarino, 1990). Studies on leadership have been completed in business, industry, government, military, in non-profit organizations, and educational institutions (Bass & Avolio, 1994).

Employees working under a transformational leader in an educational setting are more likely to display increased motivation (Bogler, 2001), job satisfaction, and
Evidence has accumulated over the last 20 years linking transformational leadership behaviour to several positive outcomes; however, the focus has predominantly been “downstream” (Bommer, Rubin, & Baldwin, 2004). Although the benefits of transformational leadership have been well established, research has yet to determine what effective leaders actually do that creates perceptions of transformational leadership (Koh 1990), and whether it is linked to the CEST information-processing systems. Limited research has focused “upstream” on such areas as the internal cognitive processes of leaders. In response to questions raised about whether information-processing systems are connected to leadership (Atwater & Yammarino, 1993; Drach-Zahavy & Somech, 1999), part of the answer may be found in the way leaders engage in information-processing according to the principles of the CEST (Epstein, 1998b).

I conducted a brief survey to examine whether undergraduate students believed rational and experiential information-processing was connected more with transformational or transactional leadership. One hundred eighty-five (seventy seven male and one-hundred and fourteen female) participants enrolled in undergraduate psychology at the University of Western Sydney volunteered for the study in exchange for course credit. Their mean age was 21.4 years. The survey first defined the rational system, experiential system, transformational leadership and transactional leadership. Next participants were asked two questions: 1) Do you think...
transformational leadership is most connected to the rational or experiential information-processing system? and 2) Do you think transactional leadership is most connected to the rational or experiential information-processing system? Participants completed the survey on-line using a 7-point bipolar scale. The descriptors in the scale were: “1” – Related to intuitive-experiential system only, “4” – Related to both systems equally, “7” – Related to the analytical-rational system only. Respondents were instructed to select a number from one to seven when answering the two questions.

The results of the survey indicated that 34% of the students thought that transformational leadership was equally connected to the rational or experiential systems. Twenty-five percent thought that transformational leadership was connected to the experiential system, while the remaining 41% thought it was connected to the rational system. With reference to transactional leadership 26% thought it was equally connected to the rational or intuitive experiential systems. Thirty-nine percent thought that transactional leadership was connected to the experiential system and the remaining 35% thought it was connected to the rational system. The results are mixed and do not indicate a clear expectation about the connection between leadership and information-processing systems. Taken together these results indicate that any relationship between leadership style and information-processing is not immediately apparent based simply on the definition of these theories.

Leadership in Education

Since 1980 two forms of leadership have dominated education: instructional leadership and transformational leadership (Heck & Hallinger, 1999). Most conceptions of instructional leadership designated authority and influence usually to school principals (Leithwood & Duke, 1999). The school principal focuses on
establishing school goals, developing the curriculum, supervising classroom instruction, and controlling the schools’ educational programmes (Bossert, Dwyer, Rowan, & Lee, 1982; Heck & Hallinger, 1999; Leithwood, Jantzi, & Steinbach, 1999). The public expectation was that principals needed to be knowledgeable about the curriculum and also have the ability to work closely with teachers to improve instruction (Hallinger, 1992). Instructional leadership corresponded well to ethos of the 1980s and part of the 1990s since it met the expectations of the public and the decision-makers. Researchers argued that while instructional leadership focused on schools’ core technology of curriculum and instruction it overlooked other aspects of educational leadership. Instructional leadership did not consider leadership of other school staff, nor did it take into consideration the external school influences (Heck & Hallinger, 1999). These two factors, along with the rate and complexity of change faced during the 1990s, posed a challenge for principals’ functioning as instructional leaders (Leithwood, 1992, 1994).

Part of the change during the late 1980s involved restructuring the school culture as a means of improving its outcomes (Heck & Hallinger, 1999). School principals involved in a restructuring process were expected to not only assist staff develop their understanding of the issues faced by the school, but to generate and develop potentially unique solutions (Hallinger, 1992). Consequently, transformational leadership appeared well suited for the restructuring process since principals were expected to bring a visionary leadership to schools - a task that was not met by instructional leadership (Bogler, 2001; Brandt, 1992). Transformational leadership in the educational context aims to “build the organization's capacity to select its purpose and to support the development of changes to practices of teaching and learning” (Hallinger, 2003, p. 330).
Although the benefits of transformational leadership have been supported in education and other organizations (Bogler, 2001; Geijsel et al., 1999); little has been done to identify the potential mediating variables contributing to that process (Koh, 1990). Future research could attempt to find out what some of the most effective principals actually do to create perceptions of charisma, individualized consideration and intellectual stimulation of staff (Koh, 1990). Specifically, research is needed to identify the kind of information-processing styles used by principals to achieve these outcomes.

The conceptual framework, outlined in Figure 2, connecting the internal processes of leaders’ to information-processing is what provides the general direction of this thesis.

![Figure 2](image-url)

Figure 2. A framework for guiding the review of research on transformational leadership in schools (Leithwood, Tomlinson, & Genge, 1996).

The relationships between the constructs in this model are conceptualized in the form of a causal chain with leadership practices located in the centre. Travelling back in the chain are leaders’ internal processes: the personality traits, demographic characteristics, and capacities, skills and thought processes that lead into leaders’ choices of overt behaviour (Leithwood et al., 1996). To date, school leadership research has not devoted much attention to the study of leaders’ internal lives, with the exception of their values and cognitive processes (Leithwood & Day, 2007).
Developing the inner cognitive processes of leaders through such means as self-reflection and conscious personal development has the potential to turn good leaders into great leaders (Collins, 2001).

According to Traversi (2007) the eight personal drivers for effective high-impact leadership include: (a) presence, (b) openness, (c) clarity of thought, emotion, and behaviour, (d) intention, (e) personal responsibility, (f) intuition, (g) creativity, and (h) connected communication. Some of the internal drivers outlined by Traversi (2007) resemble the characteristics of the rational and experiential systems. For example, clarity, the third driver of high-impact leaders, seeks to establish clarity of thought, emotion, and behaviour. This appears to be similar to attempting to establish clarity between the operation of the rational and experiential systems. To achieve clarity Traversi suggests that leaders transform their individual consciousness; however, this fails to acknowledge that some internal drivers such as intuition and creativity are considered by CEST to be subconscious processes not readily accessible to consciousness (rational system). By acknowledging that the rational and experiential systems are two parallel, bi-directional, interacting systems (Epstein, 1998b; Epstein 2000), leaders have a better chance of achieving clarity.

The internal drivers outlined by Traversi (2007), the internal processes outlined by Leithwood et al. (1996), and the internal information-processing systems outlined in CEST appear to support a link between personality-based information-processing styles and leadership. In order to enhance the relationship between leaders and followers (Bass, 1990), this thesis suggests that the knowledge gained from leaders’ understanding of their information-processing systems can assist them to develop a deeper understanding of themselves and the impact they may have on their school organization (Northouse, 2007).
Understanding internal cognitive processes may provide a framework for answering some important “why” questions related to transactional and transformational leadership (Wofford, Goodwin, & Whittington, 1998). For example, why is it that one leader gravitates towards transactional behaviours, whereas another leader in the same situation elects transformational behaviours? (Wofford et al., 1998). This thesis examines whether part of the answer to this question may be found in the principles of CEST (Epstein, 1985; Epstein et al., 1996).

Issues and Gaps in Leadership Research

There is limited research examining the relationship between emotional and behavioural coping which are aspects of constructive thinking, according to the principles of CEST, and leadership styles posited by the FRLT. Studies by Atwater and Yammarino (1993), Dubinsky, Yammarino and Jolson (1995), and Humphreys and Zettel (2002) are exceptions; however, these studies did not use a well-validated measure of individuals’ preferences for rational and experiential information-processing. Although there is an abundance of applied research on transformational leadership, there remains an identified need to test the many networks of linkages explaining how transformational and transactional leadership work, including the thought processes involved when leaders attempt to be more transformational (Bass, 1985a). Assessing the way people process information, according to CEST, and testing this in the field, may provide an important link between the leaders’ internal cognitive processes and transformational leadership.

According to CEST all behaviour is determined by a combination of rational and experiential processing in everyday life, but most behaviour is determined by the influence of the experiential system (Epstein, 1998c). Furthermore, it is the experiential system that automatically encodes experience, organizes it, directs
behaviour, assesses where the individual is going in life, all of which appears to be done continuously and at the preconscious level (Epstein, 1998b). If school leaders can acquire a better understanding of the experiential system and how it interacts with the rational system, the end result may lead to the development of effective school leadership, thereby improving the lives of school principals and their school community.

Understanding how the two information-processing systems interact could assist school leaders develop a better working relationship with their staff since the affective and cognitive based perceptions have been shown to influence organizational commitment and cynicism toward change (Albrecht, 2005). School leaders’ cognitive and affective states appear to be based on the simple premise that what they do (leaders’ practices) depends largely on what they think and what they feel (Leithwood, 1994). Understanding the cognitive and affective states of leaders’ further reinforces the interplay between information-processing and leadership and, in particular, the influence of the experiential system given its intimate association with affect.

Operating on the premise that the experiential system interprets events and manages emotions (Epstein, 1998a), it is appropriate to comment briefly on the concept of emotional intelligence as it applies to leadership. The concept of emotional intelligence has created much interest, mainly because of Daniel Goleman’s (1995) best-selling book, Emotional Intelligence, and refers to “the capacity for recognizing our own feelings and those of others, for motivating ourselves, and for managing emotions well in ourselves and in our relationships” (Goleman, 1998, p. 317). Emotional intelligence is important; however, the construct is limited (Epstein, 1998a).
Determining what comes first, thought or emotion, has had a varied history of opposing theories. Goleman (1995) has suggested that emotions come before conscious thoughts, presumably through direct physiological channels. This is in contrast to the position taken by Epstein (1998a) and Caillet (2008), who argue that emotions are almost always produced by the interpretation of events, and that automatic, preconscious thoughts precede emotions. This has been well established by the work of Beck and Ellis, who used this insight to develop the most successful form of psychological treatment for many emotional disorders: cognitive-behavioural therapy (Epstein, 1998a). The concept of emotional intelligence (Goleman, 1995) has several limitations including issues related to the current conceptualization and measurement issues, and the lack of theorizing and testing that support the domains where it could be useful (Antonakis, 2003). CEST is a dual-processing system and differs from emotional intelligence that mainly focuses on emotional self-awareness. According to Epstein (1998) the experiential system not only interprets events but also attempts to manage emotions people feel, whereas emotional intelligence is about recognizing feelings as they happen (Goleman, 1995).

Traditional leadership theory is beginning to acknowledge the part played by emotions, when leaders have to be charismatic to win hearts and minds in order to make change happen, and to demonstrate tenacity (Channer & Hope, 2001). The experiential system may be relevant because it is associated with emotion and interpersonal skills, thus this connection is an area worthy of further empirical research (Hall & Lord, 1995).

An abundance of unfinished work in the field of leadership remains (Fiedler & Garcia, 1987). The kind of organization, for example, has been overlooked and remains a confounding variable in much transformational leadership research. Within
education it has been suggested that transformational leadership approaches may be appropriate to the challenges facing schools; however, the relevance of transactional leadership in education remains to be established.

Significance of the Thesis

Taking the United States as an example, the projections developed by the National Center for Education Statistics suggests that the number of school-age children is expected to rise by six percent between 2010 and 2020, reaching ninety-four million in 2100, that is about forty-two million more children than in 2000 (N.C.f.E, 2000).

School leaders of the future may have to cope with overcrowded classrooms, shortages of teachers, aging buildings, and the demands of a changing and increasingly complex society (Fullan, 2001). School districts in the United States are facing a shortage of well-trained principals with school districts expected to replace more than 60% of all principals (Peterson, 2002). The long term development of effective leadership has the potential to increase the number and calibre of principal applicants, and potentially influence teachers’ job satisfaction and students’ outcomes.

Given that leadership is vital to schools, preparation of school leaders is serious business. Graduate programmes need to be developed that move beyond the training of efficient managers, to the preparation of visionary, moral, transformational and transactional leaders (Siegrist, 1999). If the most effective information-processing system and leadership style could be established through this research, the findings may contribute to promoting professional development programmes available during the careers of school principals.
Further, relating leadership to the principles of CEST could be seen as a doorway into the inner world of beliefs, controlling assumptions, and sensitivities of leaders in many fields. At the practical level, understanding the way educational leaders process information can serve as a way of improving both their rational and experiential processing. The findings of this thesis could: (a) contribute to the development of effective leadership training programmes, (b) facilitate the use of mentoring and coaching within education, and (c) influence further research efforts that examine the relationship between the CEST information-processing systems and leadership style.

Structure of the Thesis

This thesis consists of five studies that examine the relationship between information-processing and leadership styles. Study one examines the relationship between the rational and experiential information-processing systems and leadership styles. Given the potential automatic and preconscious influence of the experiential system on leaders (Epstein, 1998a), study two explores the constructive and destructive aspects of the experiential system and its relationship with transformational and transactional leadership. Study three is an intervention study designed to evaluate the potential for causality in the correlations arising from Study one and two. Study four explores the relationship between the CEST information-processing systems and both teachers’ job satisfaction and students’ learning outcomes. Given that conflict can occur in any organization, effective leadership requires the ability to understand and effectively manage conflict. Understanding the relationship between the CEST information-processing systems and conflict-handling styles may enable leaders’ to effectively deal with conflicts, and that is the purpose of the study five.
Chapter Summary and Outline for the Thesis

This chapter provides a rationale for the study of information-processing and leadership styles. An outline of the two theories was made to highlight the gaps and conflicts in our present knowledge. Both theories were then linked to educational leadership. The chapter concluded with an outline of the five studies. Chapter two provides a detailed review of relevant literature on the topic of information-processing and leadership concluding with an outline of a proposed theoretical model. Chapters four through to eight outline five related studies that sequentially build on each other to form the empirical basis of this thesis. Each of the five studies includes: the design, sample and procedures, data-gathering instruments, procedures used to analyse data, results and a brief discussion. Chapter nine discusses the major findings, implications, and recommendations arising from this research.
CHAPTER 2: LITERATURE REVIEW

This chapter provides a review of the psychological literature on leadership with a particular emphasis on educational leadership. After the review of the most relevant theoretical perspectives of leadership to this thesis, the focus turns to transformational and transactional leadership styles as seen through examining the internal world of leaders (Popper & Mayseless, 2002). Arising from the literature review a proposed theoretical model is presented that integrates CEST information-processing systems and leadership styles.

Leadership – Definition and Historical Perspective

“To an extent, leadership is like beauty: it's hard to define, but you know it when you see it” (Bennis, 1989, p. 1).

Although people have been intrigued by leaders and leadership since the times of Plato (Higgs & Rolland, 2002), the term leadership has remained difficult to define (Bass, 1990). Burns (1978) stated that, “leadership is one of the most observed and least understood phenomena on earth” (p. 2). Attempting to define the concept, Stogdill (1974) noted that, "there are almost as many definitions of leadership as there are persons who have attempted to define the concept” (p. 259).

Part of the difficulty in defining leadership is that it lacks a coherent conceptual framework that brings together research findings (Van Vugt, 2006). Some definitions of leadership are based on psychodynamic (Freud, 1922), cognitive (Lord & Maher, 1990) or evolutionary frameworks (Krause & Ruxton, 2002). Research on animals and primates suggests that leadership and follower-ship are simply by-products of adaptations for dominance and submission (Wilson, 1975). A review of evolutionary literature suggests that there are two broad theories of human
leadership: dominance theory and a theory of social coordination (Van Vugt, 2006). Given that some leaders can be dominant and controlling (Bass, 1990), it is possible that human leadership is the result of a drive for dominance, whereby the top ranking individual in the group controls the kind and timing of social activities. The literature suggests that most followers do not support dominant leaders because of the fear of exploitation and the likelihood they will leave the organization (Van Vugt, 2006).

Bass (1990) suggested that “Leadership is an interaction between two or more members of a group that often involves a structuring or restructuring of the situation and the perceptions and expectations of the members” (p.19). A consistent aspect of leadership definitions in the literature is that it is a process of influence (Yukl, 1998; Northouse, 2007).

Although CEST acknowledges that the experiential system is linked to the evolutionary framework it does not suggest that people use this system to dominate others or exercise control over group activities. To create a position of influence over followers’, leaders need to be aware of their internal cognitions and drivers, (Lord & Maher, 1990; Traversi, 2007) and display certain personality-based information-processing styles such as those associated with the rational and experiential systems to strengthen the connection and influence of followers.

In defining leadership and suggesting that information-processing may be linked to leadership, it is also important to draw a distinction between leadership and management, because the former relates to how leaders think, whilst the latter relates to actions. The central activities of the manager in the educational setting involves organising, planning, controlling and evaluating whereas for the strategic leader setting goals and high standards for teachers are more important (Engels, Hotton,
Devos, Bouckenooghe & Aelterman 2008). The next section draws a distinction between leadership and management.

   **Leadership and Management**

   This section outlines the distinction between leadership and management and suggests the need for organizations to have both good leaders and managers as both focus on stability, control and predictability (Engels et al., 2008). Given that leadership appears to be a process of influence, it is possible that a person can be a leader without being a manager (e.g., an informal leader); further a person can be a manager without leading (Yukl, 1994). According to Zaleznik (1989) managers try to avoid appealing to followers’ emotions, whereas leaders are more interested in institutional change. Managers plan, negotiate, reward and coerce, whereas leaders try to excite, inspire and provide support (individual consideration – one of the five transformational leadership factors). The distinction between managers and leaders is that “Managers pay attention to how things are done and the leader focuses on what the events and decisions mean to participants” (Zaleznik, 1992, p. 131).

   With reference to information-processing, it appears that managers are influenced more by the rational system since the manager is often associated with displaying “persistence, tough-mindedness, intelligence, and analytical ability” (Zaleznik, 1992, p.127). Leaders on the other hand appear to be more influenced by the experiential system as they are expected to generate “ideas, and relate in more intuitive and empathetic ways” (Zaleznik, 1992, p.131).

   With reference to leadership style it has been suggested that managers are transactional leaders who attempt to survey their followers’ needs and set specific goals based on effort. Transformational leaders on the other hand acknowledge the existing needs of their followers but are prepared to go further by seeking to arouse
and satisfying their higher needs (Burns, 1978). To achieve these outcomes, transformational leaders need to be admired by their followers, serve as role models to others, and possess a certain amount of personal appeal (charisma or idealized influence – one of the five transformational leadership factors) to generate and implement significant change (Stewart, 2006).

In reality, organizations need both good management and good leadership (Kotter, 1998; Sarros, 1991; Yukl & Lepsinger, 2004) and the real challenge is to combine both in order to balance one with the other. Once organizations understand the fundamental difference between leadership and management, they can groom their top staff to provide both (Kotter, 1998). Leadership can be seen as an extension of management, with successful managers having the ability to lead and manage when required (Sarros, 1991; Yukl & Lepsinger, 2004). Differences between leaders and managers are highlighted in Table 2. A distinction between leadership and management has been presented and the conclusion reached is that effective organizations need both. Historically, though this has not always been the case and the next section focuses on the historical development of select leadership theories.
Table 2
Differences between leaders and managers (Sarros, 1991).

<table>
<thead>
<tr>
<th>Leaders</th>
<th>Managers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project energy into making things happen</td>
<td>Concern themselves with what's happening</td>
</tr>
<tr>
<td>Communicate through example</td>
<td>Coordinate communication through the organization</td>
</tr>
<tr>
<td>Build commitment through shared values and visions</td>
<td>Demand commitment through their organizational responsibility</td>
</tr>
<tr>
<td>Can be intuitive</td>
<td>Can be scientific</td>
</tr>
<tr>
<td>Oriented toward innovation</td>
<td>Oriented toward stability</td>
</tr>
</tbody>
</table>

Historical Perspective of Leadership

With leadership theories emerging from either the feudal and bureaucratic traditions (see Figure 3); personality differences were largely ignored, mainly because managers were concerned with the structure of the organization, its communication system, and the design of jobs and tasks (Fiedler & Garcia, 1987). Since the Industrial Revolution in the late 18th and early 19th centuries (Delbridge, Bernard, Blair, Peters, & Butler, 1991) a number of new theories of leadership emerged that took into consideration personality differences to explain effective leadership. Table 3 provides an overview of the main approaches to the study of leadership in the past century.
Table 3

Recent Historical Development of Thinking on Leadership (Higgs & Rowland 2002).

<table>
<thead>
<tr>
<th>Period</th>
<th>Predominant ‘School’</th>
<th>Predominant Constructs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1920s</td>
<td>Trait Theory</td>
<td>Leadership can be understood by identifying the distinguishing characteristics of great leaders</td>
</tr>
<tr>
<td>1950s</td>
<td>Styles Theory</td>
<td>Leadership effectiveness may be explained and developed by identifying appropriate styles and behaviours</td>
</tr>
<tr>
<td>1960s</td>
<td>Contingency Theory</td>
<td>Leadership occurs in a context. Leadership style must be exercised depending on each situation</td>
</tr>
<tr>
<td>1970s</td>
<td>Charismatic Theory</td>
<td>Leadership is concerned with the charismatic behaviours of leaders and their ability to transform organizations</td>
</tr>
<tr>
<td>1980s</td>
<td>New Leadership / Neo-Charismatic School</td>
<td>Leadership and management are different. Leaders required a transformational focus that encompasses a range of characteristics and behaviours, in addition to charisma</td>
</tr>
<tr>
<td>Late 1990s</td>
<td>Emerging Approaches</td>
<td>a) Leadership may be understood by examination of strategic decision-making by executives</td>
</tr>
<tr>
<td></td>
<td>(a) Strategic Leadership</td>
<td>b) Leadership in inexorably linked to the management of change. Leader behaviours may be</td>
</tr>
<tr>
<td></td>
<td>(b) Change Leadership</td>
<td>understood in the context of the work delivering change</td>
</tr>
</tbody>
</table>


Little advantage would be gained by reviewing all leadership theories and their associated studies as some approaches appear to be more relevant to this thesis than others. Leadership theories that appear to be of relevance to this thesis are the trait approach, Fielder’s contingency and cognitive resource theories, and the FRLT. Justification for selecting these theories will be discussed next with particular emphasis placed on the emergence of transformational leadership in the educational context.

**Trait Theory**

One of the earliest approaches used to study leadership was the trait approach. It assumed that some people were natural leaders endowed with certain traits that were not possessed by other people (Stogdill, 1948; Straub, 1980; Van Vugt, 2006; Yukl, 1994). The initial traits identified were physical stature, presumed energy levels, and a forceful voice (Straub, 1980). Researchers later attempted to identify and measure all of the relatively-stable characteristics or traits of personality related to leadership (Statt, 2000). Characteristics identified included tireless energy, integrity, penetrating intuition, uncanny foresight, persuasive powers, aggressiveness, dominance, intelligence, self-confidence, and task-relevant knowledge (Bass, 1990; House & Howell, 1992; Sarros, 1991; Straub, 1980; Yukl, 1994).

Up until the early 1950s, the literature on leadership focused on three factors: the personal traits of leaders, specific competencies of leaders, and the situation requiring leadership (Leonard, 2003). The most fallacious assumption was that all groups of followers and all situations require the same traits in leaders (Straub, 1980). Comprehensive reviews by researchers concluded that traits alone were
insufficient to reliably predict who would become effective leaders (Leonard, 2003; Robbins, 1998). Any single trait (for example, need for power) only had a weak relationship to leader effectiveness. Some of the traits were moderately correlated with each other, while others interacted in complex ways (Yukl, 1994). With hundreds of studies comparing more and less effective leaders, researchers failed to identify specific personality traits that guaranteed leadership success (Bass, 1990; Leonard, 2003; Robbins, 1998; Yukl, 2002). Furthermore, the trait approach tended to treat personality variables in an atomistic fashion, suggesting that each trait acted singly to determine the effects of leadership (Bass, 1990).

Although Stogdill (1948) concluded that there were no personality traits linked to leadership, Lord, DeVader, and Alliger (1986) argued that the inconsistency in past results was largely because of sampling error and the small residual variance derived from the small number of traits studied. In addition, the small size of observed correlations was primarily because of low reliabilities (Cooper & Robertson, 1987).

Through inconsistent results that linked personality traits, perceptions of leadership, and leadership behaviours, leadership research started to decline (Lord et al., 1986). Over time, findings such as those reported by Lord et al. indicated that many key personality traits were linked to leadership behaviour (Howell & Avolio, 1993). With better-designed studies, researchers discovered that personality traits were found to be connected to leadership behaviour, effectiveness and perceptions (Judge, Bono, Iles & Gerhardt, 2002; Lord et al., 1986; Yukl, 1994).

Despite the shortcomings of the trait approach (Northouse, 2007); the thought that leaders possess unique personality traits has continued to gain momentum (Stewart, 2006). In recent times there has been a resurgence of interest in personality
trait-based theories resulting in the development of new models and consequently advancing the field of leadership. A few notable examples are the FRLT (Bass, 1985a) and the propulsion model (Sternberg, Kaufman, & Pretz, 2003). These advances in personality trait-based leadership have placed trait theories back on the leadership agenda, and with continued empirical support, such theories are likely to impact on future leadership research (Ciampiolo, Antonakis, & Sternberg, 2004). Given that there is enough evidence linking certain identified cognitive and personality traits to successful leadership (Bass, 1998) part of this thesis will examine if there is a connection between personality-based information processing systems and leadership.

The difficulties associated with predicting leadership success by isolating a small number of personality traits led researchers to focus on situational factors. The next section focuses on how changes in situations could influence leadership.

Contingency Theory

The purpose of the contingency theory, originally proposed by Fiedler was to isolate situations that would be predictive of leadership effectiveness (Robbins, 1998). Contingency theory suggested that leadership styles grew out of relatively stable personality traits and remained relatively fixed. These leadership styles focused on being concerned with the task at hand, or with interpersonal relationships among people attempting to perform the task (Fiedler & Garcia, 1987; Statt, 2000).

Contingency theory predicted that the effectiveness of a high-task orientation or high-relationship orientation leader would be contingent on the situation (Ciampiolo et al., 2004; Leonard, 2003). The two main reasons why leaders were effective include: (a) leader’s motivational structure, and (b) to what extent the leadership situation provided leaders with control and influence over the outcome.
The contingency model also attempted to integrate the feudal and bureaucratic approaches to leadership theory by describing the context where leaders with a specific kind of personality would be effective (Fiedler & Garcia, 1987).

The contingency model of leadership was operationalised through the Least Preferred Coworker Scale. The scale measured the extent followers and leaders interacted favourably (Fiedler & Garcia, 1987). More specifically, the Least Preferred Coworker Scale differentiated leaders who viewed poorly performing coworkers in negative terms (thought to reveal a strong concern with effective task performance) from those who viewed poorly performing coworkers in less negative terms (thought to reflect a greater emphasis on interpersonal relationships). Results showed that task-oriented leaders were more effective; however, results of subsequent studies showed that relationship-oriented leaders generated more effective teams (Chemers, 2000).

Although Fiedler's predictions have been generally supported (Leonard, 2003), the way the contingency model was constructed and the highly-complex nature of its predictions have led to several criticisms (Chemers, 2000). One of the shortcomings was that it failed to explain the underlying processes of effective performance (Fiedler & Garcia, 1987). In reality it also failed to explain how and why leaders’ styles affected followers’ motivation and satisfaction (Chemers, 1997). The contingency model was considered a "black box", as it failed to provide an adequate explanation about the interaction between personality and situation that resulted in different group performances (Fiedler & Garcia, 1987). Effective performance was not a simple reaction to situational events but rather a process that was influenced by several contextual forces and dynamics (Zaccaro & Horn, 2003). Fielder’s contingency model did not account for the influences of individual
differences arising from the demands of the environment (Bass, 1990). The contingency model also assumed that leaders could not choose to be both task and relationship oriented when the situation demanded it (Chemers, 2000).

Several other "contingency" approaches describe the interaction between situations and leadership behaviours, rather than personality. Working from a more deductive theoretical base Vroom and Yetton (1973) developed the normative decision theory. The normative decision theory focuses on how decision-making effectiveness integrated leaders’ decision strategies and situational factors. When the task was clear and the followers supportive, leaders could use the more time-efficient autocratic styles. If, on the other hand, the task is unclear, using the consultative strategies increases the likelihood of a higher quality decision (Chemers, 2000). Although the Vroom-Yetton theory is complex it appears to suggest that a participative style of leadership is generally better suited at promoting commitment among followers towards achieving specific organizational goals (Statt, 2000).

The contingency model and normative decision theory have several aspects in common, including the need to see leaders as central figures in the group’s efforts to interface with the task environment and to gain the group’s support for solving problems and implementing solutions effectively. Both approaches believe that more directive approaches are likely to be effective when a clear task and a supportive group provide leaders with certainty to take charge. On the other hand, more participative strategies are likely to work better when a less clear and orderly environment works against bold action and autocratic direction (Chemers, 2000).

Another well known contingency theory is House's (1971) path-goal theory. In the path-goal theory the leaders’ purpose was to motivate followers by helping them to see how their task-related performance could assist them to achieve their
personal goals. The line of research attempted to understand how leader’s
directiveness (initiating of structure) or supportiveness (consideration) behaviours
affected followers’ motivation and performance (Leonard, 2003). Although the
support for the path-goal theory is mixed (Statt, 2000), results indicated that the more
structured the task and the less directive the leader, the greater the work satisfaction,
whereas the more directive the leader with unstructured tasks, the greater the
employee satisfaction (Sarros, 1991).

Although the path-goal theory mainly focused on the task at hand and on the
 provision of external rewards, it neglected the internal factors such as motivation
(Statt, 2000). Tannebaum and Schmidt (1958) have suggested that effective
leadership is a combined function of the leader, the followers and of the situation.
The next section examines how the internal factors contributed to the cognitive
resource theory. The two major thrusts in leadership thinking combined by the
contingency model, and its successor, the cognitive resource theory are outlined in
Figure 3.
Figure 3. Historical antecedents of the contingency model.

Cognitive Resource Theory

In response to the criticism levelled at the contingency model, Fiedler developed the cognitive resource theory (Fiedler & Garcia, 1987). The cognitive resource theory is based on the assumption that: (a) intelligent and competent leaders are able to formulate more effective plans, decisions, and action strategies than less intelligent and less competent leaders, (b) the formulated plans, decisions and strategies are best appreciated when there is less stress on followers, and (c) leaders communicate their plans, decisions, and strategies through directive behaviour (Robbins, 1998; Robbins et al., 1998). The cognitive resource theory involves leadership behaviour (directiveness) and group support, as well as cognitive resources (for example, intelligence, technical competence, and job-relevant knowledge) and what effect stress has on these cognitive functions (Fiedler & Garcia, 1987).

The development of the cognitive resource theory emerged because popular theories of leadership at the time ignored such variables as leaders’ intelligence, technical competence, and experience. Although practitioners placed strong emphasis on these variables during decisions relating to managerial recruitment, selection, and promotion, theoreticians displayed a lack of concern with cognitive abilities (Mumford & Connelly, 1991). Structural theories explain how situations inhibit or promote effective decisions but they do not explain why two leaders working under the same conditions often perform quite differently. The exclusion of personality and individual differences from these theories significantly lowered their predictive power (Fiedler & Garcia, 1987). Notably the small number of studies that examined the cognitive resource theory were limited because of the difficulties in identifying leaders’ cognitive abilities (Robbins, 1998).
Leadership theories have continually evolved, for example, Fiedler extended his research to include the cognitive resource theory (Fiedler & Garcia, 1987) and House shifted his focus to transformational leadership (Wofford & Goodwin, 1994). Cognitive processes such as working memory, attribution, expectation, schema, script and strategy processes appear to act as mediators in the relationship between feedback, environmental inputs and leadership behaviours (Wofford and Goodwin, 1994). Acknowledging the importance of cognitive processes, this thesis attempts to extend Fielder’s cognitive resource theory by including leaders’ CEST information-processing systems and their subsequent influence on transformational and transactional leadership. More specifically, the following section focuses on the neo-charismatic/transformational leadership and how this approach can assist leaders to meet the needs of a rapidly-changing society.

**Development of the Full-Range Leadership Theory**

Fielder’s leadership model, situational leadership and path-goal theory appear to be associated with transactional leadership since the role of these leaders described by these theories was to motivate followers in the direction of established goals (Robbins et al., 1998). By the 1980s, management research started to focus on the emotional and symbolic aspects of leadership influence (Yukl, 1998). The focus on the emotional and symbolic leadership resulted in the development of the neo-charismatic/transformational approach to management during the 1990s. Refer back to page twenty-three for a definition of management and how it differs from leadership.

As “leadership” replaced “management” in most business books, it also represented a conceptual change from managers with a command-and-control approach to production to leaders who inspired employees to work towards mutual
goals (Ciulla, 1998). The transformational and transactional leadership model proposed by Bass (1997) was seen as a potential answer to the challenges faced by organizations in the business world (Higgs & Rolland, 2002). Leadership research quickly moved towards the development of more sophisticated theories of causation (Burns, 1978). Theory-based research had to examine how the behaviour of leaders affected group and organizational performance (Yukl, 1998).

Burns, a biographer of Franklin D. Roosevelt and of John F. Kennedy, was the first to contrast transformational and transactional leadership (Bass, 1985b). Although Burns (1978) did not invent the term transformational leadership, he was instrumental in delineating its qualities in a way that was appealing to researchers (Statt, 2000).

Although Burns (1978) conceived leaders to be either transformational or transactional, this paradigm was modified by Bass (1985b) who proposed that transformational leadership augments the effects of transactional leadership on the effects, satisfaction, and effectiveness of followers (Bass, 1990; Bass & Steidlmeier, 1999). The term augmentation suggests that there is something to amplify or extend (Judge & Piccolo, 2004). Bass extended Burns’s ideas by: (a) expanding the followers' portfolio of needs and wants, (b) suggesting that the transformational leaders’ actions were not necessarily beneficial to society, and (c) acknowledging that transformational and transactional leadership were conceptually distinct but likely to be displayed by the same individual in different amounts and intensities (Bass, 1985a).

Bass extended the work of Burns (1978) and House (1971) by linking social and organizational psychology with political science. Bass asserted that contingent reward, or exchange-based leadership, provided the foundation for effective
leadership and performance as expected standards (Bass, 1985a, 1985b, 1990). At the time it was House’s (1971) model that set the benchmark for leadership models in promoting leadership as a social exchange where leaders promised rewards and benefits to followers in fulfilling agreements (Bass, 1990). Transformational leadership went further by providing an enhancement engendering, superlative leadership and performance beyond expectation (Yammarino, Spangler, & Dubinsky, 1998).

The transformational leadership model proposed by Bass (1985a) was enthusiastically embraced by researchers and practitioners alike as it enabled organizations to develop ways that encourage followers to perform beyond expectation (Rafferty & Griffin, 2004). Transformational leadership has been consistently linked to a number of positive outcomes across samples and cultures (Bass, 1997; Whittington, Goodwin, & Murray, 2004). For example, significant positive relationships have been found between transformational leadership and job enrichment, and three outcome variables: performance, organizational citizenship behaviour, and affective commitment (Whittington et al., 2004).

Transformational leadership theory has expanded the range of leadership characteristics that extend beyond the boundaries of transactional theories. Notably, “most experimental research has focused on transactional leadership, whereas the real movers and shakers of the world are transformational” (Bass, 1990, p. 23). A central tenant of Bass's (1985a) theory is that transformational leadership goes beyond exchanging inducements for desired performance by developing intellectually stimulating, and inspiring followers, who are prepared to transcend their own self-interests for a higher collective purpose, mission, or vision (Robbins et al., 1998).
By the late 1990s, dozens of empirical investigations had been completed on transformational and transactional leadership (Conger, 1999). As discussed in Chapter 1, Bass and his colleagues completed numerous studies to develop his FRLT. In its current form the FRLT consists of nine single-order factors including five transformational leadership factors: idealized attribute, idealized behaviours, inspirational motivation, intellectual stimulation, and individual consideration, three transactional leadership factors: contingent reward, management-by-exception (active), and management-by-exception (passive), and one non-transactional factor: laissez-faire leadership (Antonakis et al., 2003). Laissez-faire leadership is allowing things to take care of themselves, essentially doing nothing and failing to provide leadership (Sarros, Gray, & Densten, 2002).

In the FRLT model transactional leadership is based on contingent reinforcement whereby the followers’ performance is reinforced by leaders’ promises and rewards or threats and disciplinary actions. Transformational leadership sets out to move the followers’ beyond self-interest and is charismatic, inspirational, intellectually stimulating, and individually considerate (Bass, 1998). Most leaders produce a profile of the full range of leadership that includes both transformational and transactional factors (Bass & Steidlmeier, 2004). The survey instrument used to assess the nine factors in the FRLT is the Multifactor Leadership Questionnaire (MLQ-5X) (Bass, 1997). Details of the MLQ (5X) are described in Chapter three (Study one).

The early stages of research into the development of the FRLT focused on establishing evidence of transformational leadership and its effects in industry and military organizations. After defining transformational leadership Bass asked seventy senior executives to describe in detail a transformational leader who they had contact
with during their careers. All respondents declared that they were familiar with at least one such person and provided a number of descriptions consistent with transformational leadership. The one hundred and forty one statements were sorted into transformational and transactional leadership. In a second survey, Bass used the descriptions of the first to validate the Multifactor Leadership Questionnaire (MLQ) Form 1, consisting of seventy three behavioural terms (Bass, 1985b, 1997).

Numerous investigations (field studies, case histories, management games, interviews, and laboratory studies) were completed that support the robustness of transformational leadership (Dorfman, 1996). The factorial studies suggested that transformational statements could be assigned to four interrelated components: idealized influence (or charisma), inspirational motivation, intellectual stimulation, and individualized consideration (Bass, 1997). With further refinements the current Multifactor Leadership Questionnaire Form (5X) consists of 45-items, each describing one aspect of the respondent’s leadership behaviour (Bass & Avolio, 1997).

Studies have been undertaken in business and industry, government, military, education and non-profit organizations. Results across all organizations showed that transformational leaders, as measured by the MLQ (5X), were more effective and satisfying as leaders compared with transactional leaders (Barling, Weber, & Kelloway, 1996; Bass, 1998; Bass & Avolio, 1994; Kark, Shamir, & Chen, 2003; Sarros et al., 2002). The FRLT appears to offer a useful way to support major change efforts at the individual, team, and organization level (Bass & Avolio, 1997).

In summary, the review of the trait approach, Fielder’s contingency and cognitive resource theory, and the Full-Range Leadership Theory appear to hold relevance to this thesis and in particular to the CEST information-processing
systems. For example, personality traits appear to be connected to CEST, which is a global theory of personality (Epstein, 1998b). The study of interpersonal relationships among people in the contingency theory (Fiedler & Garcia, 1987; Statt, 2000), factors such as intelligence and experience described in the cognitive resource theory, and the five transformational leadership factors described in the FRLT (Bass, 1997) appear to be related to the rational and experiential systems. Although most transformational leadership studies have been conducted in the military and business context, this thesis examines leadership in the educational context. The next section examines the emergence of transformational leadership in the educational context.

Educational Leadership

During the 1960s centralized bureaucratic organization gave way to new approaches to management (Ciulla, 1998). Educational researchers and policy analysts have criticized schools for being overly bureaucratic and argued for the need to shift towards more supportive forms of educational leadership, more participative forms of school decision-making, and more collaborative forms of staff interaction (Rowan, Raudenbush, & Kang, 1991).

By the early 1980s terms such as “educational leadership” and “school leadership” were not as popular as they are now (Gronn, 2003). Transformational concepts like "empowerment", "vision" and "mission" are now commonly used in educational systems throughout the world. But, are there opportunities in modern, corporate educational systems for practitioners with deep personal convictions to inspire social change and improvement, individually or collaboratively? Bringing about change is possible, even through applying transformational leadership to create effective change in education can be complex (Crowther, 1997).
In reality advances in educational leadership have not kept pace with the vast number of resources the corporate world has devoted to leadership identification and development (O'Connor, 2005). “We live in a world dominated by the idea that leadership is one of the major factors - sometimes it seems the only factor - that will determine whether an educational organization, be it a school, a college or university, will succeed or fail” (Simpkins 2005, p.9).

Acknowledging to the influences of the corporate world, the time had come to address the unique challenges faced by school leadership (Leithwood, 1994). To commence addressing these challenges it has been suggested that some educational systems had to move beyond their archaic, Industrial Age assumptions and structures and, as some modern corporations have done, start searching for new ways of thinking and doing business. For example, school leaders who embraced the transformational outcome-based education and change were considered to be future oriented and visionary thinkers (Spady & Marshall, 1991).

Part of the problem with educational administration programmes has been that they focused too much on administration and management, and little on leadership (F. Yammarino, personal communication, November, 2005). Around 1990, researchers began to shift their attention to leadership models that accounted for the evolving trends in educational reform such as empowerment, shared leadership, and organizational learning. The evolution of educational leadership reflects “second order” changes, as it focuses primarily at changing the organization’s normative structure (Leithwood, 1994). First order change reflects a kind of transactional relationship whereby followers' needs are met if their performance measures up to their contracts made with leaders. Higher order change on the other hand calls for something distinguishable from such an exchange relationship. The
most frequently used model of this variety has been transformational leadership (e.g., Bass, 1985a, 1997; Leithwood & Janzi, 2000).

Although research suggests that transformational leadership, with its emphasis on leader charisma, individual consideration, and intellectual stimulation, was able to add significant variance in the prediction of such variables as job satisfaction, and organizational commitment in the educational context (Koh, 1990), the problem with transformational leadership is that it has been adopted from studies of military or business leaders, who themselves may not have been successful (Day, 2000).

In response to the gap in research, Leithwood and his colleagues (1997) developed a comprehensive model of transformational leadership in schools. The model conceptualizes leadership along seven dimensions: (a) building school vision, (b) establishing school goals, (c) providing intellectual stimulation, (d) offering individualized support, (e) modelling best practice and important organizational values such as demonstrating high performance expectations, (f) creating a productive school culture, and (g) developing structures to foster participation in school decisions (Leithwood, Jantzi & Steinbach, 1997). Data from Canadian schools supports the model proposed by Leithwood et al. (1997) by suggesting that the most important transformational leadership behaviours are creating a vision, setting high expectations for performance, creating consensus around group goals, and developing an intellectually stimulating climate (Firestone & Seashore Louis, 1999).

Transformational leadership also involves protecting the values of the organization by providing leadership in a way that encourages others to be leaders in their own right (Sergiovanni, 1995). In addition to protecting the values of schools, school principals also needs to ensure that schools are financially sustainable
(Sergiovanni, 1996). Monitoring the financial situation of schools suggests that educational leaders and business managers have much in common and may benefit from each other (Fullan, 2001). Businesses, for example, could acknowledge that moral purpose is critical for sustainable success (Fullan, 2001), although leaders sometimes fail ethically because self-interest always devalues moral worth (Hamilton, 2008; Price, 2004). The recent collapse of Lehman Brothers Holdings Inc. and the American International Group, Inc. (AIG), are two examples where CEOs appear to have sacrificed morality for a golden parachute (excessive compensation) following an acquisition (Evans & Hefner, 2009). The real culprit behind the AIGs near collapse appears to be the CEO who allowed greed, incompetence and corporate malfeasance to seep into the fabric of the company (Ruquet, 2009).

Through business, schools could discover that new ideas, knowledge creation and the importance of sharing are critical components for meeting the needs of a changing society. Leaders in both school and business settings face similar challenges: that is, in order to survive in the knowledge society, both need to cultivate and sustain learning under conditions of complex change. The result is that education and business leadership are moving closer. A new level of mutual respect and partnership between the corporate and education sectors is needed to develop leadership effectiveness (Fullan, 2001).

One such initiative is being implemented at Binghamton University, a State University of New York, where a new certification programme focusing on educational leadership is being developed in collaboration with the School of Management, School of Education and Human Development, and the School of Public Administration. One of the benefits of the programme will be to provide
opportunities for school leaders to work with leaders from business organizations (Simpkins, 2005).

Given that school principals are under demand to be "bureaucratic executives", "humanistic facilitators," and "instructional leaders", the last two decades has seen a debate over the most suitable form of leadership for schools (Leithwood, Louis, Anderson, & Wahlstrom, 2004). Over time, scholars and practitioners began to use terms such as shared leadership, teacher leadership, distributed leadership, and transformational leadership (Hallinger, 2003). As a result of the changes to leaders’ style of management, there has been a steady shift away from more authoritarian patterns to more collaborative, participative approaches to school leadership (Draper & McMichael, 2003).

With changing leadership approaches and pressures of accountability many teachers in middle management have been reluctant to become school principals (Morris, 2005). The age structure of the teaching profession has also placed pressure for new principals to replace those who are retiring (Draper & McMichael, 2003). With the smaller number of applicants applying for the position of principal, a deeper analysis reveals that the trend is associated with increased responsibility, higher standards expected of schools and changes in Government funding, especially in Australia (Caldwell, Calnin, & Cahill, 2002). The shortage of school leaders is also evident in a number of European countries (Kruger, van Eck, & Vermeulen, 2005). Because of the low interest in school leadership positions, the calibre has also fallen with the aging teacher population (Jones, 2003). Results from a major inquiry into teachers' pay and conditions in Scotland indicated that both the quantity and quality of suitably qualified candidates determined who would be appointed as principal (Draper & McMichael, 2003).
Principals remaining in their positions and those new to the position over the last ten years have been defined as "agents of change" (Jones, 2003). Notably the work of these principals has intensified because of the large array of mandatory accountability and audit requirements (Gronn, 2003). Because of the scale, complexity and demands of school leadership, principals in large schools have little option but to work in collaborative teams (Wallace & Huckman, 1996). Role complementarity and overlaps are signs that the accomplishment of workplace responsibilities depends on reciprocal actions rather than on solo performance (Gronn, 2003).

Due to the associated demands for good school leadership, governments, corporations, academics, schools and school systems have placed large amounts of resources in the development of educational leadership (Nicholls, 2002). For example, funding for National College of School Leadership (NCSL), Nottingham, U.K. increased from £29.2 million in 2000-2001 to £111.3 million in 2004-2005. The level of funding reinforced the strong political belief in the importance of effective leadership and management to improving school outcomes (Bush, 2005). Alongside this funding support is the increasing presence of books and articles on leadership in general and more specifically on educational leadership (Simpkins, 2005). For example, the NCSL conducts research on leadership and leadership development, and has published two guides on leadership for busy school leaders (Abra, Hunter, Smith & Kempster, 2003; West, Ainscow & Norman, 2003).

Given that the meaning of leadership is complex and includes many dimensions (Northouse, 2009), it makes it particularly difficult for school administrators who themselves may struggle with its meaning, to be expected to fulfil leadership roles (Richmon & Allison, 2003). An important distinction that
needs to be made is that becoming an administrator has little to do with becoming an educational leader (O'Connor, 2005). The key, then, is to build up educational leaders’ conceptions of what it means to be a leader. These include: (a) having moral purpose, (b) relationship building, (c) knowledge generation, (d) understanding the change process, and (e) coherence building (Sparks, 2003).

With the teacher supply becoming a significant international problem (Rettig, 2001), employers are reporting, both in Australia and overseas, that the numbers of teachers applying for senior leadership positions in schools is low (Jones, 2003). In the United States, for example, school districts are facing a shortage of well-trained principals (Peterson, 2002). In response to this concerning trend this thesis examines how school principals can become more effective leaders, specifically by examining their thinking.

In education, fulfilling the leadership roles is an everyday challenge faced by principals and other senior school staff (Richmon & Allison, 2003). At the end of a principal’s tenure, success is gauged by several areas including students’ learning outcomes, and the quality of the follower-ship that emerges within schools (Sergiovanni, 1995). It is essential “that authentic transformational leadership must rest on a moral foundation of legitimate values” (Bass & Steidlmeier, 1999, p.184). When this takes place the followers’ confidence levels are raised and needs broadened to support development to higher potential. In order to achieve engagement (emotional, intellectual and moral) among followers so that they can develop and perform beyond expectation (Bass, 1985a; Burns, 1978), school principals need to ensure that they maintain a balance between their personal needs and the needs of the organization.
Finding a Balance

Schools can be challenging, ambiguous, and demanding organizations. The vast array of complex tasks, conflicting pressures, and thorny dilemmas may create a constant state of activity. Even among the many daily tasks school principals can make progress towards a balance between leading and managing, by blending creativity with logic and making every effort to function at the juncture of the two (Deal & Paterson, 1994).

Notably school principals may view managing and leading as different and conflicting activities. However when school principals’ start to identify how they think that they can gain insight into how their preferences can subconsciously guide their behaviour, leadership style and how they communicate with others (Sousa, 2003).

Working out the balance between leaders’ personal needs and needs of the organization deserves further research (Yukl, 1994). When leaders experience an imbalance between personal needs and that of the organization, the results can be devastating. The reported suicide of Jeff Barger, a Victorian school principal highlights the importance of keeping a balance between personal and organizational needs. According to reports Mr. Barger was a dedicated and hard working school principal; however, he was also overwhelmed by the constancy of the job and found it difficult to express his feelings and needs (Thornton, 2005).

Leadership is a balancing act that is made more difficult by tradeoffs between short-term and long-term objectives, between stability and change, and between control and empowerment. It is for this reason that effective leaders manage to find a balance that takes into account these tradeoffs, but also reflect the primary concern for the long-term effectiveness of the organization (Yukl & Lepsinger, 2004).
Principals may prefer to see themselves mainly as educational leaders; however, the reality is that many see themselves essentially as managers or administrators (Saulwik & Muller, 2004). With leadership theories increasingly being influenced by psychology, there is an increasing need for psychologists to apply their teaching, research and practice to educational leadership (Belar, Nelson, & Wasik, 2003; Murray, 2002).

This section has discussed educational leadership and suggests that school principals need to exercise effective leadership in order to cope with the complexity and demands of the job. Principals of independent schools in Australia have substantial autonomy in their ability to run a school, much like CEOs, who are answerable to a board of directors. However, this autonomy also carries significant demands and expectations from the school community. The next section provides an outline of the independent school system in Australia.

Educational Leadership in Independent Schools

This section outlines some of the key aspects of the independent school system in Australia and how principals in these schools can bring about effective change while respecting established traditions and the ethos of their school. The system of relevance to this thesis is the independent system. In Australia, there are eight separate education systems (Bourke, 1993) with the largest being the public (government) school system followed by independent school system (Barnett & McCormack, 2004). Over the years there has been a steady growth of student enrolments in independent schools ranging from 4% in 1970 to 12% in 2003 (Taylor-Steele, 2003).

The independent school system consists of combined elementary (primary) and secondary schooling, with 58% of all independent schools offering both levels of
education. Single-gender schools account for 12% of boys in boys-only schools and 15% of girls in girls-only schools. (Taylor-Steele, 2003). For school principals, working in an independent school offers the opportunity to exercise autonomy, and is generally perceived as a high status position. Some of the larger well-established independent schools consist of approximately 1800 students, employing 120 teachers and approximately 30 auxiliary staff, making them just as complex as large business organizations (Gronn, 2003). Because school principals in independent schools have greater operational autonomy this provides them with an opportunity to exercise leadership and introduce the necessary changes to keep pace with a world that has become more increasingly complex and interdependent (Gibson, 1997). However, the introduction of new initiatives needs to be carefully managed owing to a number of factors including existing traditions and the values of the school.

Understanding how change was managed during more stable times in the past may not work in the current context (Fullan, 1999; Sarros & Santora, 2001). The lesson for organizations, including schools, is that they must change and learn to cope with changes. Constant change has carved a niche for the contextual relevancy of transformational leadership in the organizational world (Koh, 1990). In Western Europe, for example, educational innovations are characterized on an increasingly large scale with the observable shift from a traditional to a transformational policy of innovation. The conditions of uncertainty and continual change have challenged the innovative capacities of schools and other organizations, and this demand has consequences for the kind of leadership required (Van Den Berg & Sleegers, 1996). For example, in the hospital setting, transformational leadership has been found to indirectly affect innovation by increasing staff morale (Wilson-Evered, Härterl, & Neale, 2001).
Although change has been endemic in the education for the last quarter of the twentieth century, the recent acceleration of change and its pervasiveness for schools has created concern for the way potential candidates are prepared for the role of principal and this appears to be reflected in the shortage of suitable applicants (Caldwell et al., 2002). So what kind of leadership is best suited in a world that is undergoing massive transformation (Sarros & Santora, 2001). A combination of social, economic, demographic and structural factors have resulted in educational leaders continually facing the uncertainty of change and needing to examine where those changes may lead (Hill & Guthrie, 1999). Perhaps a different form of leadership style is required in schools that operated in less complicated and relatively stable circumstances in the past (Hargreaves, 2000). Notably there are no standard procedures for dealing with unremitting government initiatives and increasing pressures from the community. Part of the solution may involve educational research and policy examining what makes schools flexible, responsive to change, and effective (Hill & Guthrie, 1999). Leadership now, more than ever, needs to build the capacity of the school community to deal effectively with the change process (Hargreaves, 2000).

The initial step for school principals may involve working out how leadership and management can complement each other in order to cope with change. With major changes becoming increasingly necessary to survive and compete effectively, the introduction of change always demands more leadership (Kotter, 1998).

Although there is concern about the quality and quantity of suitable principal applicants, there is a need to move towards a different form of socialization for principals (Sparks, 2003). There are many innovative organizations and programmes set up around the world aimed at developing and identifying the next generation of
educational leaders. The majority of the programmes reflect the shift from traditional to transformational leadership styles. In England, for example, the Government created the National College of School Leadership in 2000 with the aim of developing leaders on a large scale (Bush & Glover, 2005). In 1998 the Scottish Qualification for Headship (SQH) was launched aimed at improving teacher development and schools (Menter, Holligan, & Mthenjwa, 2005) and in District 2, New York City, the Teaching Assistant Principal (TAP) programme has enabled the district administrators to train principals in a way consistent with the philosophy of the school board and local superintendents (Burdette & Schertzer, 2005).

In Australia, the Government launched Teaching Australia – Australian Institute for Teaching and School Leadership (AITSL) in 2004, formally known as National Institute for Quality Teaching and School Leadership (NIQTSLS) (Suggett, 2004). Representing the national body for the teaching profession, its mission has been to promote quality teaching and school leadership. The three main goals were: (a) establishing a national system of standards for school leadership, (b) establishing a national approach to enhancing professional learning for school leaders and, (c) building leadership capacity in schools. In 2006, the executive team worked closely with the Hay Group, based at the University of Melbourne, and other world experts to develop a training programme for school principals. In 2008 Teaching Australia published The Open Book Scenarios: Teaching for Uncertain Futures project. Applying educational scenarios to future school leadership suggests that by 2030 “Effective principals will be role models for innovation, creativity, and endeavor, both in the school and the broader community” (Freeman & Watson, 2008, p.48). The outcomes of this thesis could further enhance the work of Teaching Australia –
Australian Institute for Teaching and School Leadership and other educational organizations that aim to prepare effective educational leaders for the 21st century.

The NIQTSI Implementation Strategy Report (Suggett, 2004) acknowledges the role of the school leader as a critical component in transforming schools into innovative organizations. In addition to the important leadership role of school principals, and other senior administrative positions, the report suggests that leadership could be distributed across several personnel (Gronn, 2003; Handy, 1996), and embodies the notion of a community of leaders (Senge, 1997) or co-leadership (Hennan & Bennis, 1999).

This section has discussed the independent school system in Australia and concluded that school principals acting as transformational leaders could facilitate the change process. However knowing how to manage conflict is also important because of the uncertainty and stress associated with change initiatives, and this is what the next section covers.

Managing Conflict in Organizations

Leaders who exercise transformational leadership may be better placed to deal with conflict within an organization as people are increasingly concerned about creating and maintaining peace (Holt & DeVore, 2005). The drive for peace is also evident at the organizational level, whereby many leaders and managers seek to create peace in the workplace by viewing conflict as a threat to coordination and effective functioning. Establishing a peaceful workplace by minimizing conflict sits well with the traditional view that conflict is negative and the best ways to resolve it is through problem-solving (De Dreu & Weingart, 2005). Once considered to signal the failure of an organization, conflict is increasingly being shown as a normal and legitimate aspect of the human social system, a system that is interdependent and
constantly undergoing change. Conflict in organizations is not only inevitable but, contrary to earlier views, can serve a useful role in stimulating creative solutions to problems (Owens & Valesky, 2007).

The presence to conflict may be attributed to: (a) physiological disorders, (b) personal experiences that involved defensiveness, prejudice, “blind” conformity and aggressiveness, and (c) stressful, frustrating, or painful circumstances, such as being deprived of basic needs, being hindered in the achievement of goals, or being competed with, dominated, or provoked by others (Nye, 1973).

Given that conflict can have several origins, it is likely to be found in any well-led organization, and depending on the circumstances and the values of the observer, it may be positive and negative (Brown, 1983; Owens & Valesky, 2007). The positive qualities of conflict include: (a) an expanded understanding of the issues; (b) mobilization of involved parties’ or persons’ resources and energies; (c) clarification of competing solutions and creative searches for alternatives; and (d) enhancing the ability to work together in the future. Negative qualities associated with too much conflict include: (a) the development of antagonistic attitudes; (b) restrictions and distortions to the flow of information; (c) low-quality decisions based on poor information and one-sided commitments; and (d) deterioration of relations among the parties (Brown, 1983). Conflict within an organization could also generate strong emotions such as anger, disgust, fear, and hostility. Mixing emotions with conflict could lead to psychological withdrawal and physical withdrawal, such as absence and turnover that are common responses to conflict in schools (De Dreu & Weigart, 2005; Owens & Valesky, 2007).

Conflict within an organization can be both constructive and destructive depending on how it is managed. The focus of conflict management in organizations
is to reduce destructive conflict, such as hostility, on the one hand, and make conflict as productive, creative, and useful as possible on the other (Owens & Valesky, 2007). A type of balance is achieved by reducing conflict if there is too much, and promoting conflict if there is too little (Brown, 1983).

In today’s fast-paced and evolving organizations, leaders are not only required to effectively manage conflict but also manage change in order to survive. Why is it then that many change initiatives struggle to succeed? Part of the answer may be because change is not understood as a cognitive process; that is, it is about how organizational leaders and followers expect, articulate and react to change (Lord & Emrich, 2001), and how some organizations fail to prioritize the human cost of change (Channer & Hope, 2001). For school principals to effectively manage change and conflict this thesis argues that they initially need to understand the operation of their internal CEST information-processing systems as this influences how they think, feel and what they do, and this is the focus of the next section.

The Rational System and Leadership

To appreciate the strength and influence of rational thinking it is necessary to briefly examine it from a historical perspective. Initially it was the ancient Greek Stoics who argued that thinking was reliable and feelings were too subjective, idiosyncratic, and unreliable to be used in constructive ways by society (Ciarrochi, Forgas, & Mayer, 2001). Centuries later, the rational, scholarly, and empirical emphasis of the European enlightenment further attempted to discredit emotionality. Attempts to discredit emotionality continued well into the 20th Century, for example, Rand (1962) suggested that “a rational man is guided by his thinking (by a process of reason) – not his feelings or desires” (p. 51).
Leadership theories have been dominated by logical positivism and operationalism (Bass, 1985a). Consequently, it has been the economic cost-benefit exchange models of leadership that have mostly been tested in both the laboratory and field. After all, overt exchanges are easier to sense, observe, record, and measure. Furthermore, they are also logically compelling as long as one can posit that leaders are rational beings (Bass, 1985a). In reality, studies of reasoning and problem solving have demonstrated that people often fail to understand or apply abstract logical principles even when they could apply these in concrete familiar contexts (Tversky & Kahneman, 1983). These findings were particularly troubling to economists, whose theories assume that people are rational in the sense that they hold preferences that are complete and transitive, and as a result, choose what they most prefer (Slovic, 1995). In reality some human thinking occurs automatically, below the threshold of awareness, and follows non-rational principles that are usually adaptive but can also be maladaptive in certain situations (Epstein, 1998a).

The leadership approach in most organizations has been to highlight rationality. Albert Einstein, regarded as the epitome of scientific rationality, pointed out the danger of people operating solely through rational discourse (Epstein, 1998a). Notably it appears that history has judged emotions as threats, and a “softer skill”, rather than a valuable support to be harnessed (Channer & Hope, 2001; Cooper & Sawaf, 1997). Emotions were consistently devalued and sidelined while rationality was privileged as an ideal for effective organizational life (Putman & Mumby, 1994). With human needs being ontologically grounded in emotions (Sites, 1990) it seems ironic that both leaders and followers know that career roles produce extremely strong emotions, both positive and negative. Furthermore, it is these same set of
emotions that interact with and influence peoples’ ability to think rationally about work (Kilburg, 2000).

With rationality being valued in the workplace it posed a challenge for male leaders to regulate and make effective use of emotions. The attempts to regulate emotions are further compounded developmentally whereby boys start life being more emotionally expressive than girls; however, that tendency wanes as they get older (DeAngelis, 2001).

Given that the "traditional" leadership theories highlighted rational processes (Yukl, 1999); it is understandable that the original competency sets specified that leaders needed to be rational (Channer & Hope, 2001). Rationality focused leaders are likely to: (a) be strong in achievement motivation and emphasize competence, independence, and industry, (b) rely highly on formal structure and a priori logic, (c) are decisive in that they require a small amount of information to generate specific solutions, (d) emphasize speed and efficiency, and (e) initiate structure and provide intellectual stimulation Bass (1985b).

Faced with the prospect of continual change and the need to operate at new levels of complexity, the rationally focused leaders were expected to develop a radically different set of competencies. Most leaders probably have much invested in the past and as a result may be promoted for doing well at yesterday's activities; however, successful leadership requires a willingness to rethink, to abandon, to let go of the past in order to create the future (Gibson, 2003).

Although critics have attacked the rhetoric of transformational leadership for being unethical and appealing to emotions rather than to reason (Bass & Steidlmeier, 1999), the new models of charismatic or transformational leadership continue to gain recognition (Channer & Hope, 2001). Having outlined how the rational approach to
leadership has attempted to discredit emotionality, the new models of leadership attempt to integrate an emotional component to traditional cognitive capabilities as they apply to the workplace. They promoted emotions, values and acknowledge the importance of making events meaningful for followers (Channer & Hope, 2001). The next section examines how emotional competency could be developed to supplement the rational approach in the workplace.

**Experiential System and Leadership**

"The rational mind is a faithful servant; the intuitive mind a sacred gift. The paradox of modern life is that we have begun to worship the servant and defile the Divine”

(Albert Einstein (Owen, 2001, p.1)

This section outlines the role of emotions which form part of the experiential system, by making reference to the rational approach and concluding that the proper use of emotions could contribute to creativity and enable leaders to inspire their followers. Aristotle was perhaps the first to suggest the importance of emotion in human interaction. Aristotle’s reference to the use of appropriate anger challenges people to acquire and manage this skill (Goleman, 1995). Although some people can manage their emotions better than others, it is something that can be learned over time, and with the appropriate corrective experience. Psychologists have long acknowledged the need for people to deal with anger in a constructive manner (Trierweiler, Eid, & Lischetzke, 2002). However, people often overestimate the duration of their emotional reactions (Gilbert & Wilson, 2000). Not knowing how long anger will last suggests that emotional behaviour is not driven by reason but is likely to be directed automatically by the experiential system (Epstein, 1998a).

Humans are hard-wired from the cortex to the the amygdala although the amygdala has greater influence on the cortex by allowing emotional arousal to
dominate and control thinking (LeDoux, 1996). Any attempt to create a reduction in emotion could result in irrational behaviour since emotions provide a supplementary mental facility to the rational process (Damasio, 1994). Although more could be learned about emotions, it is clear that successful regulation is central to effective interpersonal relationships, coping with life's hardships, and optimizing mental health (Carstensen, Pasupathi, Mayr, & Nesselroade, 2000). These findings are relevant to leadership since they acknowledge that emotions are present throughout people’s lives, can become more complex with age, and could be regulated.

One reason why emotions have not been widely examined in the general leadership literature, or in theories and research on transformational and charismatic leadership, is that they are difficult to define and measure (Connelly, Gaddis, & Helton-Fauth, 2002). The role played by emotions in organizations has only recently gained prominence, mainly because the commonly held view that emotions are value-laden psychological constructs and “inappropriate” for organizational life (Putman & Mumby, 1994).

Even with the negative portrayal of emotions it is difficult to disregard the fact that emotions contribute to, and reflect, the structure and culture of organizations (Fineman, 1994). Researchers who study emotions in organizations are often likely to focus on work satisfaction, work enthusiasm, or self-actualization behaviour in organizations (Flam, 1994).

The stereotypical image of a “rational” decision maker is a leader who can set aside their personal feelings and calmly calculate the best course of action to deal with a problem or opportunity (George, 2001). Arising from an empirical investigation examining the association between negative affect and perceptions of a
negative environment, results indicated that negative affect influenced managers' perceptions of the strategic environment (Daniels, 1998; Walsh, 1995).

Decision-making at an organizational or at the personal level involves some emotional influence (Myers, 2002). Dealing with uncertainty is often associated with emotions; after all, people are emotional, feeling and affective beings and not simply rational cognitive machines. Emotions are inherent in management action, including strategic decision-making. No leaders or managers can disregard their feelings, even though they may sometimes try to do so (Sjostrand, 1997).

There is a growing body of research starting to explore the role of emotions and intuition in organizations (Ashkanasy & Nicholson, 2003; Sadler-Smith & Shefy, 2004). The expression of emotion appears to be crucial in understanding the organization as a complex social system (Callahan, 2002). Leaders who consciously devalue emotions can lead to contradictions, whereas leaders who value their emotions and use their intuitive decision-making skills have a greater capacity to ignite their creative energy, improvisation, and involvement (Leybourne & Sadler-Smith, 2006; Putman & Mumby, 1994).

The experiential system constantly makes associations between past situations by activating feelings, or “vibes,” (Epstein, 1998) and when it interacts constructively with the rational system at the highest level of operation could facilitate the development of creativity (Bucci, 1985; Epstein, 1994). The interaction of cognitive, affective and somatic processes, (Hodginkson, Langan-Fox & Sadler-Smith, 2008) could provide the answer to one of the most universal quests of our time, that is, the need for creative leadership (Burns, 1978). Organizations of the future may then be in a position to offer society a new alternative, one shaped by
emotionally-connected creativity and mutual understanding as necessary elements for human growth (Putman & Mumby, 1994).

Leaders who are able to assess how others feel, respond appropriately to their feelings, and sometimes alter these feelings in productive ways, are more likely to effectively overcome resistance to change and transform the organization in significant ways (George, 2001). In the educational context successful school leaders display emotional understanding, empathy, and interact on both cognitive and emotional levels with key stakeholder groups (Day & Leithwood, 2007). Effective leaders have the potential to inspire their followers through their own emotions.

As organizations move into the 21st century, the “silence on feelings in organizational theory” (Albrow, 1992, p. 313) that dominated the 20th century has now been transformed to acknowledge the important role of emotions in organizational life (Callahan, 2002). The recognition of emotions in the workplace has gained greater acknowledgement through such concepts as emotional intelligence (Goleman, 1995), knowing how to accurately measure emotional intelligence and relate it to leadership is the focus of the next section.

Emotional Intelligence and Leadership

This section looks at the concept of emotional intelligence by examining its emergence and limitations, and suggesting that CEST, with its emphasis on the experiential system, could further explain how emotions interact with the rational system.

The key to effective leadership may lie at the intersection between intellect and emotions (see Chapter 1). When leaders operate at this intersection they may be better placed to integrate business acumen and strategic foresight with the ability to connect with people on an emotional, almost visceral level (Buono, 2003; Goleman
et al., 2002a). High IQ and technical expertise could have a paradoxical effect in some people who end up failing in organizational life. Similarly, people who display high emotional intelligence could be inept in dealing with non-personal, non-social problems (Damasio, 1994).

The emotional intelligence concept is not new (Langley, 2000): however, when examined from a neurological perspective it captured the attention of both researchers and the leadership industry. The emotional intelligence framework developed by Goleman (1995, 1998) consists of four dimensions, two are linked to personal competence (self-awareness, self-management) and two with social competence (social awareness, relationship management) (Goleman, Boyatzis, & McKee, 2002). The framework has generated both interest and criticism. In a study examining emotional intelligence of both leaders and followers job performance with job satisfaction, the results suggest that followers displayed higher job satisfaction: however, it was critical to match employee levels of emotional intelligence with the job requirements. The caveat is that it may be a waste of time and resources to stress the importance of followers’ emotional intelligence when it may not be required in certain jobs (Wong & Law, 2002).

The situation concerning popular notions of emotional intelligence and its influence on the business world is problematic from a scientific, economic, and ethical position. Organizations might be basing their hiring, promotion, or retention decisions on emotional intelligence models that do not, as yet, have enough scientific backing (Antonakis, 2004). Present conceptualization and measurement issues regarding the domains of emotional intelligence are such that both have yet to be established (Antonakis, 2003; Wong & Law, 2002; Zaccaro & Horn, 2003).
The suggestion is not for leaders to ignore the emotional states of others but rather they do not necessarily need to operate with high levels of emotional appraisal ability (Antonakis, 2005). Normal people are perfectly capable of demonstrating the emotional appraising/social skills that are necessary for effective leadership (Antonakis, 2004). What matters for leadership is that leaders do the right thing, that is, maintain emotional integrity (Solomon, 2005), and value the collective moral conviction of followers (Antonakis, 2005).

Emotional intelligence fails to acknowledge the importance of practical intelligence and the influence of preconscious, automatic thoughts on emotion (Epstein, 1998a). Goleman acknowledges that in recent years there has emerged a scientific model of the emotional system that explains how people can be reasonable at one moment and irrational the next, specifically CEST. “One of the best assessments of the emotional system is offered by Seymour Epstein” (Goleman, 1995, p. 291).

Although not explicitly stated, much of the literature on transformational leadership implies that leaders need emotional intelligence (Higgs & Rolland, 2002). Transformational leaders are not only required to be charismatic and inspirational, but also intellectually and emotionally stimulating (Bass, 1990). This thesis suggests that transformational and transactional leadership not only requires emotional intelligence, which can be explained by the experiential system, but also an interaction of the experiential system with the rational system to bring about effective leadership. The extensive research that has been carried out by Epstein and his colleagues on information-processing reflects the rigorous scientific approach used in psychology and as a result is well placed to extend the leadership field. Notably the leadership literature appears disconnected (Zaccaro & Klimoski, 2001).
partly due to the historical preoccupation with the leaders’ rational cognitive capabilities. With the emergence of transformational leadership, new models of leadership developed that added an emotional component to the rational cognitive capabilities (Channer & Hope, 2001).

Most theories of leadership have a tendency to frame the leader-follower interactions as the “essence” of leadership (Mumford, Zaccaro, Connelly, & Marks, 2000). An alternative way of framing the problem is to focus on individual leaders. Given that transformational leadership emphasizes the significance of the “person”, and personal traits, in bringing about social and cultural change (Crowther, 1997) this thesis proposes that leadership is contingent on the way leaders use their information-processing systems. By understanding leaders’ rational and experiential systems, further insight could be gained about the leader-follower interaction. With the exception of the cognitive resource theory, most of the popular theories of leadership have ignored variables such as the leaders’ intelligence, technical competence, and experience (Fiedler & Garcia, 1987).

In his earlier work on full-range leadership, Bass (1985b) speculated that the appearance of transformational leadership might be contingent on certain organizational contexts:

We speculate that transformational leadership is most likely to appear in organic organizations where goals and structures are unclear, but where warmth and trust are high, members are highly educated and are expected to be creative. On the other hand, transactional leadership is most likely to appear in mechanistic organizations where goals and structures are clear.
and/or where members work under formal contracts. (Bass, 1985a, p. 158).

Despite the extensive research support for Bass’s (1985a) FRLT, it is unclear whether it is a trait or behavioural theory of leadership. The first component of transformational leadership is charisma, and the very meaning of the word - gift in Greek suggests a trait. Thus, it is possible that facets of transformational leadership, such as charisma, are traits or at least are influenced by traits. Judge and Bono (2000) declared that: “even if one considers transformational leadership to be a behavioural theory, the origins of the behaviours are unclear. There is surprisingly little research to help answer the question” (p. 752). CEST information-processing systems could provide part of the answer to whether or not the FRLT is a trait or behavioural theory. To resolve this question it is important to initially understand the development of the CEST information-processing systems and how it may be connected to leadership.

Development of the Cognitive-Experiential Self Theory

In this section I discuss how the unconscious could be interpreted as an adaptive system by examining the development of CEST, characteristics of the rational and experiential systems based on research findings, and conclude that the relationship between the two systems is complex.

Although Freud considered the unconscious to be a maladaptive system more recent theorists outside of the psychoanalytic tradition have formulated more adaptive views of the unconscious (Epstein, 1994). Originally introduced in 1973 by Epstein as a “global theory of personality” it later became known as the cognitive-experiential self theory. The theory assumes that everyone unintentionally constructs an implicit personal theory of reality by automatically learning from experience.
Since its inception in 1973, CEST has undergone considerable development through extensive research (Epstein, 1998b). As outlined in Chapter 1, CEST proposes that people process information by two parallel, interactive systems. The rational system, operates primarily at the conscious level is intentional, analytic, primarily verbal and relatively affect free. The experiential system is assumed to be automatic, preconscious, holistic, associationistic, primarily nonverbal, and closely associated with affect (Epstein et al., 1996).

The rational system is a deliberative, effortful, abstract system that operates primarily in the medium of language and has had a brief evolutionary history (Epstein, 1998b). Operating by conventionally established rules of logic and evidence (Denes-Raj & Epstein, 1994) the rational system has been found to be correlated with SAT scores, grade point average (Epstein et al., 1996); adolescent scholastic ability, and aspects of coping ability, such as focusing on problem solving and working hard to achieve (Cerni, 1999).

Significant positive correlations have been found between the rational system and the “Big Five” Personality Traits including extraversion, openness, conscientiousness, and negative correlations with neuroticism (Pacini & Epstein, 1999). The same study also found significant positive correlations between the rational system and ego-strength, and basic beliefs. In a more recent study the rational system was found to have a significant positive relationship with having a meaningful life, self-acceptance and the Rosenberg self-esteem scale (Norris & Epstein, 2006). These results further support the view that the rational system operates logically and mostly at the conscious level. Although CEST acknowledges the importance of the rational system with its focus on logic and solving abstract
problems, it places even greater importance on the experiential system (Epstein, 1998a).

The experiential system has a long evolutionary history and operates in a similar way in nonhuman and human animals (Denes-Raj & Epstein, 1994; Epstein, 1998c). Because of humans’ highly-developed brains, the experiential system is assumed to operate in more complex ways. With its close association with affect, the experiential system appears to hold important implications for understanding creativity and intuition (Epstein, 1998c).

The experiential system has been found to have a significant positive connection with establishing secure relationships (Epstein et al., 1996). Significant positive relationships have also been found between the experiential system and a number of the “Big Five” Personality Traits, including; extraversion, openness, conscientiousness and agreeableness (Pacini & Epstein, 1999). Within the same study a significant positive relationship was found between the experiential system and basic beliefs, and emotional expressivity. In a more recent study the experiential system was found to have a significant positive relationship with several behavioural measures including: emotional empathy, personal growth, social popularity and measures of creativity (Norris & Epstein, 2006).

Although the experiential system interprets events mainly through concrete and imaginative ways, it is capable of generalization and abstraction through the use of prototypes, metaphors, and narratives (Epstein, 1998b). The experiential system appears to be more strongly associated with developing interpersonal and secure relationships compared with the rational system (Epstein et al., 1996). Using a large sample of undergraduate students, Epstein and his colleagues examined the relationship between interpersonal relations and information-processing. Results
showed that women who adopted a thinking style that ran counter to the one stereotypically associated with femininity (low rational and high experiential) tended to avoid close, emotional relationships. Men on the other hand who disconfirmed the stereotype of masculinity by being high on the experiential or intuitive system fared well in their relationships (Epstein et al., 1996). The relationship between the rational and experiential systems appears to be complex and not clear-cut. The development of CEST information-processing systems has been discussed, concluding that, although the relationship between the rational and experiential systems is complex, it can provide important insights about leadership, as defined by the FRLT. The next section attempts to explore this relationship.

**Linking the Cognitive-Experiential Self theory and the Full-Range Leadership Theory**

This section looks at CEST information-processing systems and the FRLT by examining the connection between the rational and experiential systems with leadership, and concluding that effective leaders may benefit from incorporating both systems to lead their organization successfully along the transformational journey.

Although Epstein and his colleagues conducted extensive research to explain the rational and experiential systems, no research has examined the degree leaders use or are influenced by either of the systems when it comes to leadership. Given that emotions have guided human survival from an evolutionary perspective (Epstein, 2003); the dilemma for leadership is to work out how leaders’ rational cognitive capabilities are connected with emotions. The key might be to develop a leadership approach that is based on self-awareness according to the principles of the cognitive-experiential self theory and how that influences everything else leaders do. The first step for all leaders is to take responsibility for their own development (Raso &
McDonald, 2006) by understanding their own emotions and that of their followers (Goleman et al., 2002). Studying the relationship between emotion and cognition is considered an important new research direction in the leadership field (Walsh, 1995). For leaders to develop a foundation based on self-awareness and emotional insight it is necessary to explore the constructive aspects of the experiential system that emanates from the preconscious level.

Certain leadership situations, such as solving logistical problems require analytical processing, whereas developing interpersonal relations may require an automatic, experientially determined response. Holding situational features constant, the greater the emotional involvement, the greater the shift in the balance towards the experiential system (Denes-Raj & Epstein, 1994).

A critical aspect of leadership may be the degree to which leaders rely on and are influenced by the rational and experiential systems. Would it be preferable for leaders to be high on both rational and experiential processing, low on both or high on one and low on the other? Because CEST information-processing systems are independent, leaders could gain information about the interactive influence of the two systems (Epstein, 1998b). Depending on the situation, being high on either experiential or rational thinking can have its inherent challenges. People who rate themselves high on experiential thinking and low on rational thinking may benefit from cognitive therapy so they could learn to be more rational by identifying and disputing maladaptive ways of automatically construing events. Notably, such people tend to resist such intervention as it may threaten their most fundamental way of experiencing the world, a world that is largely guided by their intuitive impressions. On the other hand, people who are high on the rational and low on experiential processing run the risk of: (a) being alienated from the true self, (b) may be lacking
in authenticity the ability to relate warmly to others, and (c) not experience joy from their accomplishments (Epstein, 1998b).

As assumed in CEST, Shiloh, Salton, and Sharabi, (2002) demonstrated that individual differences interact with situational cues in producing cognitive bias. Therefore situational cue, that is, the framing of choice alternatives in negative versus positive terms appears to activate rational and experiential thinking styles differently. Specifically, the results showed that people with high rational/high intuitive (“complementary thinking”) and low rational/low intuitive thinking (“poor thinking”) styles were the ones most prone to framing effects, that is, people tended to choose more non-risky alternatives under positive framing compared to equally valued options framed negatively. When looking at the thinking styles separately there was no effect on choice. The interaction between the rational and experiential systems is more complex than previously assumed (Shiloh et al., 2002).

In order to be resistant to framing effects it was suggested that the person should have a clearly dominant processing style, that is, either rational or experiential. Both information-processing systems appear to have strong internal guides, either logical or experiential, that could assist the person in risky-choice situations. People with non-differentiated thinking styles, either “compensatory” or “poor”, appear to rely more upon cues within risky-choice situation (Shiloh et al., 2002).

The tendency to use more of the rational system and/or less of the experiential system appears to predict judgments that are more normatively acceptable, while less rational and more experiential tendencies predict more heuristic judgments (Tversky & Kahneman, 1983). These findings are consistent with the assumptions made by CEST that the interaction of the experiential and
rational systems produces compromises and that the direction of the compromises shifts increasingly toward rational dominance with increased maturity (Pacini, Muir, & Epstein, 1998a).

Leaders need to develop interpersonal competence in order to be effective (Bass, 1985a, 1990; Sternberg, 2003). More specifically, it involves having the ability to communicate, the willingness to promote individual relationships, authenticity, caring, ability to handle conflict, have insight and express empathy (Bass, 1990). This may, in part, be the result of information-processing behaviours that are not subject to high degrees of conscious or rational control.

Guiding an organization along a transformational journey requires leaders to internally synthesise three areas. The three areas are: (a) rational (what needs to be done, when, how and by whom?); (b) political (how will it impact on the status quo?); and (c) emotional (how will it impact emotionally, individually and collectively across the organization?) (Channer & Hope, 2001). By understanding their own internal processes, leaders may be better positioned to facilitate solving complex problems, make better decisions, adapt their behaviour to the situation, and better manage crises (Yukl & Lepsinger, 2004). Furthermore, “the ability to understand one’s own needs and likely emotional reactions to events facilitates decision-making in stressful situations and helps maintain optimism and enthusiasm about a project or mission in the face of obstacles and setbacks” (Yukl & Lepzinger, 2004, p.223).

Depending on the situation and the individual, the balance of influence between the two information-processing systems appears to shift in the direction of rational system with age; however; the shift is always less than fully complete as the experiential system continues to influence the rational system no matter how much a
person tries to be completely rational (Epstein & Pacini, 1999). Even if it was possible for a person to be completely rational (Shiller, 2000), this may not be desirable, since the person could lose the advantage gained from experiential processing, such as the development of creativity and intuitive wisdom (Epstein & Pacini, 1999).

In reality the only way leaders can hope to be reasonably objective and rational is to compensate for their experiential processing, which implies that they must be aware of its operation, and to deny it suggests that the person is being controlled by it (Epstein & Pacini, 1999). To be alienated from one’s innermost experiences in the name of rationality is potentially irrationality (Epstein, 1989). This assertion challenges the commonly held view that leaders are mostly rational (Bass, 1985a) since the experiential system continually exerts its influence over the rational system.

Differential use of the rational system and/or experiential system can have differing effects on how leaders create organizational change. The rational system appears to be the better system in creating change since it enables leaders to respond more readily and with ease. The experiential system is slower and appears to be more resistant to organizational change; however it too can bring about change through repetition or an intensive emotional experience (Epstein, 1991).

When it comes to developing a successful vision and enhancing decision-making skills, leaders need to consider using both logical analysis and intuition (Bennis, 1989; Sadler-Smith & Shefy, 2004; Tichy & Devenna, 1990). Suggesting that leaders’ make use of both their rational and experiential systems is one thing; it is quite another working out how the two systems interact and how they can be used to bring about effective leadership.
To create effective leadership it appears that a balance is needed between analytical (rational system), creative, (experiential system), and practical abilities (Sternberg, 2003). Given that most jobs can be completed successfully through a variety of different skill balances, the ultimate success of leadership depends on the ability to capitalize on analytical, creative, and practical strengths (Sternberg, 2003). Sternberg went on to develop a propulsion model that characterizes some of the ways leaders can manifest their creativity.

Successfully drawing on the experiential system, a system that operates at the subconscious level and enabling it to be followed by corrective rational processing has the potential to create new knowledge. For example, the formulation of the world's first successful nuclear chain reaction by Leo Szilard took place during a “burst of defiant creativity” (Lanoutte, 1992). Leo Szilard commented:

The creative scientist has much in common with the artist and the poet. Logical thinking and an analytical ability are necessary attributes to a scientist, but they are far from sufficient for creative work. Those insights in science that have led to a breakthrough were not logically derived from pre-existing knowledge: The creative processes on which the progress of science is based operate on the level of the subconscious. (p. xiii).

In an age of diversity and complexity, it seems essential to transcend the either/or way of thinking that previously juxtaposed the rational/analytic and intuitive modes of thinking, in order to embrace the notion of balance (Davis-Floyd & Arvidson, 1997). Many fields of psychology viewed intelligence as IQ and later viewed other aspects of psychological functioning as distinct from intelligence.
Successful intelligence lies at the basis of conventional intelligence (analytical aspect), creativity (creative aspect), and wisdom (practical aspect), because these are the skills that often make the difference between success and failure on the job and life itself (Sternberg, Kaufman, & Pretz, 2003). This section discussed the interaction between information-processing and leadership and concluded that leaders are more likely to reach their full potential by understanding the joint influence of the rational and experiential systems. The next section outlines the development of the proposed theoretical model that encompasses the CEST information-processing systems and the FRLT in the educational context.

Proposed Theoretical Model

Expressed as questions, any viable theory of leadership needs to be able to address four fundamental and interrelated concerns. These four concerns are: (a) who is identified (in the theory in question) as an actual or potential leader? (b) in what context does the theory place leadership? (c) what kinds of data are required by the theory to investigate hypotheses or other claims? and (d) how does the theory distinguish leadership from non-leadership behaviours or actions? (Richmon & Allison, 2003). These questions provided a useful guide for developing the proposed CEST-transformational leadership model in this thesis.

The development of the CEST-transformational leadership model has been influenced by the research findings arising from the literature review. More specifically, the CEST-transformational model has been shaped by research on the personality trait theory, Fielder’s contingency and cognitive resource theory, FRLT, and the CEST-information-processing systems. The proposed CEST-transformational leadership model is outlined in Figure 4.
The proposed theoretical model suggests that how leaders think and feel, and what they do, is influenced by two parallel interacting systems, a rational and experiential system (Epstein, 2000). CEST assumes that everyday perception and behavior is mostly directed by the experiential system (Epstein & Meier, 1989). Given that the experiential system can be both constructive and destructive, Figure 4 shows a one-way arrow from the experiential system to constructive thinking. Constructive thinking consists of global constructive thinking, behavioural coping, emotional coping and their respective subscales. Details about the experiential system and constructive thinking were discussed in Chapter 1.

Since CEST is considered to be a global theory of personality (Epstein, 1998b), personality traits provided the initial connection between CEST information-processing systems and leadership. The study of interpersonal relationships in the contingency theory (Fiedler & Garcia, 1987; Statt, 2000) and factors such as intelligence and experience described in the cognitive resource theory provided further support of the connection between CEST information-processing systems and leadership.

From constructive thinking, the proposed model suggests that leaders need to ensure that their constructive, rather than destructive, thinking is operating when it interacts with the rational system. The combination of the rational system with the constructive elements of the experiential system is thought to influence transformational and transactional leadership. Given that effective leaders are likely to use both transformational and transactional leadership (Robbins et al., 1998), both styles of leadership appear to be connected to the rational and experiential systems. The proposed model suggests a causal-pathway between rational and experiential systems, constructive thinking, transformational leadership, and two educational
outcomes: teachers’ job satisfaction and students’ learning outcomes. Laissez-faire is represented with a dashed line, and reflects the absence of leadership (Antonakis et al., 2003). No connection is expected between laissez-faire leadership and the two educational outcomes.

The argument presented in this chapter outlines potential connections between rational and experiential processing and transformational leadership. As such, in this model rational and experiential processing are connected with transformational leadership, but not transactional leadership. At the same time, transformational leadership augments the effectiveness of transactional leadership (Bass, 1997), and this connection is indicated in the model. A revised version of the CEST-transformational leadership model that incorporates the results of the five studies in this thesis is presented in Chapter 8. The next section provides a summary of this chapter and an outline of Chapters three to seven.

Chapter Summary and Outline of Chapters 3 to 7

This chapter provided research and conceptual work arguing for a distinction between leadership and management, and a historical review of leadership theories relevant to this thesis. The trait approach, Fielder’s contingency and cognitive resource theory, and the FRLT were discussed with particular emphasis on the emergence of transformational leadership in the educational setting. Managing conflict in organizations was also discussed, together with the connection between CEST information-processing systems, emotional intelligence, and the FRLT. The chapter concluded with an outline of the proposed CEST-transformational leadership model.

Chapters three through to seven consist of five studies that have been approved by the University of Western Sydney Human Research Ethics Committee, and
specifically designed to evaluate the proposed theoretical model. Since no research has been found in the literature examining this association, Study one investigated the connection between leadership and CEST information-processing systems among school principals, using self-report measures.
Figure 4. A proposed causal-pathway between CEST information-processing systems and leadership styles.
CHAPTER 3: STUDY 1 – INFORMATION-PROCESSING AND LEADERSHIP

The previous chapter examined some of the historical and the current literature on leadership and CEST information-processing systems in the educational context. The chapter culminated in the development of a proposed theoretical model. Given that leaders could be influenced differently by the rational and experiential systems, the following hypotheses were examined:

Hypothesis 1: There will be a positive relationship between the CEST information-processing systems, and transformational leadership.

Hypothesis 2: There will be gender differences between information-processing and leadership styles among school principals.

Using a correlational design, study one involved collecting survey data from principals of independent schools in New South Wales and Australian Capital Territory (NSW/ACT). The sample used in study one consisted of principals from independent high schools, elementary schools (primary schools), and special schools in NSW/ACT.

Method

Sample and Procedure

In February, 2005, four-hundred and sixty-eight surveys were sent out to principals of independent schools in NSW/ACT. The survey package consisted of a covering letter, demographic questionnaire, the Rational-Experiential Inventory-Long Form (REI-L), and the Multifactor Leadership Questionnaire (MLQ) Form 5X.

---

1 Independent schools consist of private/non-government schools. Independent schools are set up and governed independently on an individual basis.
questionnaire. A total of 168 (36%) questionnaires were returned. In March 2005, three-hundred reminder letters were sent out, resulting in the return of fifteen additional questionnaires. A total of one-hundred and eighty-three school principals returned the questionnaires – representing a response rate of 39%. The return rate is slightly higher than typical mail-out, mail-back surveys (Saulwick & Muller, 2004).

Of the one-hundred and eighty-three principals, 56% were males and 44% were female. Their mean age was 50.2 years (men, M = 50.5 years and women, M = 49.8 years). The average number of years in the teaching profession was twenty-six, with an average of six years (range two months to twenty-three years) as principal per se. About half (52%) of the schools catered to both elementary and secondary levels, 32% were solely elementary, and 16% were secondary. Thirty-one percent had fewer than 200 students and 34% had 201-600 students. Eighteen percent had 601-1000 students and 17% had more than 1000 students. On average, schools had forty-six teaching staff and seventeen support staff.

Measures

Rational-Experiential Inventory-Long Form (REI-L)

The measure used to assess the rational and experiential systems was the Rational-Experiential Inventory-Long Form (REI-L). Earlier versions of the REI (Epstein et al., 1996) consisted of two scales, the Need for Cognition (NFC) and Faith in Intuition (FI), both corresponding to the rational and experiential systems (Pacini & Epstein, 1999). The NFC scale was originally developed in experiments on the “need for cognition” by Cohen, Stotland, and Wolfe (1955, as cited in Thompson, Chaiken & Hazelwood, 1993). Cohen et al. (1955) as cited in Caccioppo & Petty (1982) describe the need for cognition as “a need to structure relevant situations in
meaningful, integrated ways” (p. 291). Cacioppo and Petty (1982) found significant correlations between the NFC scale and the American College Testing Programme (r = .39, p < .01). Intelligence was found to be positively connected to people’s tendency to engage in and enjoy thinking. Although the NFC scale was seen as a reliable measure and relevant to the rational system, it provided little information about the experiential system.

The NFC scale measures the degree of engagement in and enjoyment of cognitive activities (e.g., “I would prefer complex to simple problems”). By contrast the FI scale measures confidence in feelings and initial impressions as a basis for decisions and actions (e.g., “When it comes to trusting people, I can usually rely on my “gut-feelings””) (Pacini, Muir, & Epstein, 1998a). The combination of the FI scale with the NFC scale resulted in a new self-report measure known as the Rational-Experiential Inventory (REI).

Although the REI could provide evidence for the independence and discriminant validity for the NFC and FI scales, they did not have completely parallel content (Pacini & Epstein, 1999). Most of the NFC items described a preference for engagement in cognitive activities, whereas the FI items referred to the ability to make effective intuitive judgments.

The NFC scale was also found to be more reliable (α = .87) than FI scale (α = .77; Epstein et al., 1996). This was further confirmed in a study of depression among college students from the perspective of CEST. The REI scales were found to be independent (τ = -.07, ns) and adequately reliable (for NFC, α = .84; for FI, α = .78), (Pacini et al., 1998). Similar results were found elsewhere (Cerni, 1999; Epstein et al., 1996). Part of the explanation may be because of the additional items found in the NFC scale (19 NFC items vs. 12 FI items). In the original REI scales fourteen of
the nineteen NFC items were negatively worded, and all of the FI items were positively worded (Pacini & Epstein, 1999).

Given that the two scales did not have completely parallel content (Pacini et al., 1998), Epstein and his colleagues developed a new REI scale. This was done by sorting out the existing NFC and FI scales into ability and engagement categories and developing new items to balance the numbers between the subdivisions as well as between the number of positively and negatively worded items. The ten best items were selected from each of the four REI subscales, therefore creating a forty item measure (Epstein, Pacini, & Norris, 1998).

The subscales were termed rational ability, rational engagement, experiential ability, and experiential engagement. Rational ability purports to indicate an ability to think logically and analytically (e.g., “I have no problem thinking things through carefully”); (Pacini & Epstein, 1999). Rational engagement purports a reliance on and enjoyment of thinking in an analytical, logical manner (e.g., “I enjoy thinking in abstract terms”). Experiential ability purports to indicate a high level of ability with respect to one’s intuitive impressions and feelings (e.g., “When it comes to trusting people, I can usually rely on my gut feelings”). Experiential engagement purports to indicate a reliance and enjoyment of feelings and intuitions in making decisions (e.g., “I like to rely on my intuitive impressions”). The overall rationality and experientiality scales were obtained by summing the appropriate ability and engagement subscales (Pacini & Epstein, 1999). The REI-L uses a 5-point Likert scale to rate statements about feelings, beliefs and behaviours. The descriptors in the Likert scale were: “1” – Definitely False, “2” – Mostly False, “3” – Undecided or Equally True and False, “4” – Mostly True, and “5” – Definitely True. Respondents
were instructed to work rapidly and be guided by their first impressions when answering the questions.

The new REI scale showed a considerable improvement on the old version. It has an equal number of items per scale (20 items) and an equal number of positively and negatively worded items. The total scale reliabilities reported by Pacini and Epstein (1999) are higher and showed greater similarity than earlier version (Rationality scale, $\alpha = .90$; Experientiality scale, $\alpha = .87$, and the Experientiality scale is considerably more reliable. Rationality and experientiality scores were independent, $r (142) = .00$, and reliable (rationality, $\alpha = .91$; rational ability, $\alpha = .85$; rational engagement, $\alpha = .87$; experientiality, $\alpha = .88$; experiential ability, $\alpha = .80$; experiential engagement, $\alpha = .82$) (Epstein et al., 1996). The REI’s test-retest correlations are sufficiently high, ranging from .60 to .80 (Handley et al., 2000; Pacini & Epstein, 1999). Similar results were found in a second study examining the relation of rational and experiential thinking styles to performance on a ratio-bias task (Pacini & Epstein, 1999).

There is good evidence that the Rational-Experiential Inventory (REI) measure has good psychometric properties and is a useable and useful instrument (Handley et al., 2000). With good psychometric properties and having the measure validation on the general population, the REI was selected as an appropriate measure for this study. The REI-L questionnaire may be found in Appendix 1.

Previous versions of the REI viewed the experiential scale as a single global measure with the main emphasis on intuition. Towards the completion of this thesis, Norris & Epstein (2006) validated and revised the experiential scale (REIe) and concluded that the experiential scale is multi-dimensional, comprising of intuition, emotionality, and imagination. Given that the emphasis of this thesis is on the global
rational and experiential scale rather than its subscales, and that the findings using the revised experiential scale (REIe) are consistent with those from research using the REI (Epstein et al., 1996; Pacini & Epstein, 1999) it was decided to use the REI.

Multifactor Leadership Questionnaire (MLQ-5X)

The MLQ (5X) (Bass & Avolio, 1997) consists of 45-items, each describing one aspect of the respondent’s leadership behaviour, for example; “I keep track of all mistakes” (Sarros & Santora, 2001). The forty-five statements describing leadership style were completed by principals on a five point scale. The descriptors in the Likert scale were: “0” – Not at all, “2” – Once in a while, “3” – Sometimes, “4” – Fairly often, and “5” – Frequently, if not always.

Numerous factor analyses of the MLQ have been conducted. The factor studies suggested that transformational statements could be assigned to four interrelated components (Bass, 1997). Through the collection and analysis of these data, a new model of leadership began to take shape (Bass, 1985a). Bass’s (1985b) original theory included three transformational leadership factors and two transactional leadership factors. Based on the studies completed between 1985 and 1990, Bass and his colleagues expanded the leadership theory (Bass, 1998; Bass & Avolio, 1997).

In its current form the FRLT consists of nine single-order factors (Antonakis et al., 2003). The nine factors of the FRLT are made up of five transformational leadership factors, three transactional leadership factors and one non-transactional laissez-faire factor (Antonakis et al., 2003). The five transformational factors are: (a) idealized influence – attributed, (b) idealized influence – behaviour, (c) inspirational motivation, (d) intellectual stimulation, and (e) individualized consideration. The three transactional factors are: (a) contingent reward, (b) management-by-exception
(active), and (c) management-by-exception (passive). In addition, one non-transactional factor is included: laissez-faire. The MLQ (5X) is a valid and reliable instrument that can adequately measure the nine factors of the FRLT and three leadership outcomes including: (a) extra effort, (b) effectiveness, and (c) satisfaction (Antonakis et al., 2003).

The following five subscales make up transformational leadership in the MLQ (5X):

1. Idealized influence – attributed refers to the socialized charisma of the leader, whether the leader is perceived as being confident and powerful, and whether the leader is being viewed as focusing on higher-order ideals and ethics;

2. Idealized influence – behaviour refers to the charismatic actions of the leader that are centered on values, beliefs, and a sense of mission;

3. Inspirational motivation refers to the ways leaders energize their followers by viewing the future with optimism, stressing ambitious goals, projecting an idealized vision, and communicating to followers that the vision is possible;

4. Intellectual stimulation refers to leader actions that appeal to followers’ sense of logic and analysis, by challenging followers to think creatively and find solution to difficult problems; and

5. Individualized consideration refers to leader behaviour that contributes to follower satisfaction by advising, supporting, and paying attention to the individual needs of followers, and thus allowing them to develop and self-actualize (Antonakis et al., 2003).

Transactional leadership in the MLQ (5X) is defined as an exchange process based on fulfilling contractual obligations, and is typically presented through the
setting of objectives and controlling outcomes. The following three subscales make up transactional leadership:

1. Contingent reward leadership (i.e., constructive transactions) refers to leader behaviours that focus on clarifying role and task requirements and providing followers with material or psychological; rewards contingent on the fulfilment of contractual obligations;

2. Management-by-exception (active), (i.e., active corrective transactions) refers to the active vigilance of the leader whose goal is to ensure that standards are met; and

3. Management-by-exception (passive), (i.e., passive corrective transactions) with this approach the leaders only intervene after mistakes or noncompliance has already taken place.

The one non-transactional factor, laissez-faire, represents the absence of transactions with respect to leadership. The leader avoids making decisions, abdicates responsibility, and elects not to use their authority. Laissez-faire is considered active only to the extent that the leader chooses to avoid taking action (Antonakis et al., 2003).

The MLQ (5X) also assesses three leadership outcomes including: (a) extra effort, (b) effectiveness, and (c) satisfaction. Extra effort is defined as the additional exertion displayed by followers as a result of leadership. Effectiveness is the extent leaders see themselves as being effective in achieving outcomes, goals and objectives, and satisfaction refers to the leader’s sense of self-satisfaction resulting from their leadership behaviour and activity (Sarros et al., 2002). Transformational leadership was, on average, found to be positively correlated with the three outcome measures when compared with the three transactional factors, and laissez-faire
leadership. The exception being, contingent reward, that was found to be positively correlated with the three outcome measures but to a smaller degree (Bass & Avolio, 1997).

The MLQ (5X) on average, exhibits high internal consistency and factor loadings (Bass & Avolio, 1997). Earlier versions of the MLQ had some degree of reliability and validity (Bass & Avolio, 1990) and problems were found with construct validity of the transactional side of the MLQ (Wofford et al., 1998).

In a study examining the validity of the measurement model and factor structure of Bass and Avolio's MLQ (5X), Antonakis et al. (2003) found strong and consistent evidence that the nine-factor model best represented the factor structure underlying the MLQ (Form 5X) instrument. There is a caveat that as far as any leadership survey instrument, including the MLQ (5X), no measure is capable of accounting for all possible leadership dimensions. The MLQ (5X) does, however, represent a foundation to conduct further research to develop "new models of leadership" (Antonakis et al., 2003). The reliabilities for the MLQ (5X) in two independent studies are outlined in Table 4.

The range of reliabilities reported by Bass and Avolio (1997) were .76 to .89 and slightly lower in the Sarros, Gray and Densten (2001) study, that is, from .61 to .78. The reliabilities in study one of this thesis were .49 to .85. The reliabilities for the main MLQ factors including the three leadership outcomes were: Transformational ($\alpha = .85$), transactional ($\alpha = .56$), laissez-faire leadership ($\alpha = .49$), extra effort ($\alpha = .58$), effectiveness ($\alpha = .65$), and satisfaction ($\alpha = .67$).
Table 4

Reliabilities for the MLQ (5X) based on the Bass and Avolio (1997), and Sarros, Gray and Densten (2001) studies.

<table>
<thead>
<tr>
<th>Leadership factors</th>
<th>Study (a)</th>
<th>Study (b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transformational leadership</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Idealized Attributes</td>
<td>$\alpha = .86$</td>
<td>$\alpha = .67$</td>
</tr>
<tr>
<td>Idealized Behaviours</td>
<td>$\alpha = .85$</td>
<td>$\alpha = .68$</td>
</tr>
<tr>
<td>Inspirational Motivation</td>
<td>$\alpha = .88$</td>
<td>$\alpha = .78$</td>
</tr>
<tr>
<td>Individualized Consideration</td>
<td>$\alpha = .86$</td>
<td>$\alpha = .75$</td>
</tr>
<tr>
<td>Intellectual Stimulation</td>
<td>$\alpha = .89$</td>
<td>$\alpha = .74$</td>
</tr>
<tr>
<td>Transactional leadership</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contingent Reward</td>
<td>$\alpha = .85$</td>
<td>$\alpha = .61$</td>
</tr>
<tr>
<td>Management by Exception (Active)</td>
<td>$\alpha = .76$</td>
<td>$\alpha = .73$</td>
</tr>
<tr>
<td>Management by Exception (Passive)</td>
<td>$\alpha = .85$</td>
<td>$\alpha = .72$</td>
</tr>
<tr>
<td>Laissez-Faire leadership</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laissez-Faire</td>
<td>$\alpha = .81$</td>
<td>$\alpha = .77$</td>
</tr>
</tbody>
</table>

Note. Study (a) - Bass and Avolio (1997), Study (b) – Sarros Gray and Densten (2001).
Results

Initial Analysis

Descriptive statistics

The Cronbach’s Alpha reliabilities for the rational processing, experiential processing and their subscales ranged from .80 to .90. Total rational and experiential scores were unrelated ($r = .02$, $p = .83$), providing good evidence for the independence of the two CEST information-processing systems. Descriptive statistics and Cronbach’s Alpha results for the Rational-Experiential Inventory-Long Form (REI-L) and the Multifactor Leadership Questionnaire (5X) are presented in Table 5.
Table 5

*Mean, Standard Deviation and Cronbach’s Alpha Reliabilities for the REI-L and MLQ (5X)*

Principal Sample.

<table>
<thead>
<tr>
<th>REI-L and MLQ (5X) scale/subscale</th>
<th>Number of items</th>
<th>Number of items</th>
<th>Males (a)</th>
<th>Females (b)</th>
<th>Total (c)</th>
<th>α</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Rationality Total</td>
<td>20</td>
<td></td>
<td>81.46</td>
<td>8.70</td>
<td>80.90</td>
<td>9.19</td>
</tr>
<tr>
<td>Ability</td>
<td>10</td>
<td></td>
<td>41.22</td>
<td>4.61</td>
<td>39.87</td>
<td>5.16</td>
</tr>
<tr>
<td>Engagement</td>
<td>10</td>
<td></td>
<td>40.23</td>
<td>5.26</td>
<td>41.03</td>
<td>4.88</td>
</tr>
<tr>
<td>Experientiality Total</td>
<td>20</td>
<td></td>
<td>66.68</td>
<td>10.88</td>
<td>68.64</td>
<td>9.65</td>
</tr>
<tr>
<td>Ability</td>
<td>10</td>
<td></td>
<td>35.22</td>
<td>5.11</td>
<td>36.09</td>
<td>5.03</td>
</tr>
<tr>
<td>Engagement</td>
<td>10</td>
<td></td>
<td>31.26</td>
<td>6.53</td>
<td>32.55</td>
<td>5.76</td>
</tr>
<tr>
<td>Transformational Total</td>
<td>20</td>
<td></td>
<td>67.46</td>
<td>6.96</td>
<td>67.93</td>
<td>7.51</td>
</tr>
<tr>
<td>Attributed Charisma</td>
<td>4</td>
<td></td>
<td>12.44</td>
<td>2.13</td>
<td>12.43</td>
<td>2.09</td>
</tr>
<tr>
<td>Idealized Influence</td>
<td>4</td>
<td></td>
<td>14.47</td>
<td>1.73</td>
<td>13.98</td>
<td>1.94</td>
</tr>
<tr>
<td>Inspirational Motivation</td>
<td>4</td>
<td></td>
<td>14.10</td>
<td>1.74</td>
<td>14.11</td>
<td>1.89</td>
</tr>
<tr>
<td>Intellectual Stimulation</td>
<td>4</td>
<td></td>
<td>12.85</td>
<td>2.04</td>
<td>13.36</td>
<td>2.06</td>
</tr>
<tr>
<td>Individualized Consideration</td>
<td>4</td>
<td></td>
<td>13.57</td>
<td>1.60</td>
<td>14.03</td>
<td>1.58</td>
</tr>
<tr>
<td>Transactional Total</td>
<td>12</td>
<td></td>
<td>22.48</td>
<td>4.92</td>
<td>22.15</td>
<td>4.81</td>
</tr>
<tr>
<td>Contingent Reward</td>
<td>4</td>
<td></td>
<td>11.74</td>
<td>2.46</td>
<td>12.22</td>
<td>2.27</td>
</tr>
<tr>
<td>Management-by Exception (Active)</td>
<td>4</td>
<td></td>
<td>6.63</td>
<td>3.20</td>
<td>5.92</td>
<td>2.92</td>
</tr>
<tr>
<td>Management-by Exception (Passive)</td>
<td>4</td>
<td></td>
<td>4.09</td>
<td>2.43</td>
<td>4.01</td>
<td>2.48</td>
</tr>
<tr>
<td>Non-Leadership Factor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laissez-Faire</td>
<td>4</td>
<td></td>
<td>2.60</td>
<td>2.07</td>
<td>2.69</td>
<td>1.96</td>
</tr>
<tr>
<td>Outcomes of Leadership</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extra Effort</td>
<td>3</td>
<td></td>
<td>8.96</td>
<td>1.55</td>
<td>8.96</td>
<td>1.65</td>
</tr>
<tr>
<td>Effectiveness</td>
<td>4</td>
<td></td>
<td>13.27</td>
<td>1.62</td>
<td>13.70</td>
<td>1.71</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>2</td>
<td></td>
<td>6.64</td>
<td>1.02</td>
<td>6.82</td>
<td>.96</td>
</tr>
</tbody>
</table>

Note. N = 183. Men, n = 103; Women, n = 80.
Correlations between Transformational and Transactional

To determine the relationship between information-processing systems and transformational and transactional leadership Pearson’s correlations were computed between the REI-L and the MLQ (5X). There was a significant positive correlation between the rational system and transformational leadership (see Table 6). This correlation coefficient is statistically significant at the 1% level. The five-factors that make up transformational leadership were all significantly correlated with the rational system: Idealized influence (attributed) (r = .26, p <.01); idealized influence (behaviour) (r = .46, p <.01); inspirational motivation (r = .46, p <.01); intellectual stimulation (r = .44, p <.01); individualized consideration (r = .28, p <.01). A weak positive correlation was found between the experiential system and transformational leadership (see Table 6). There was also a significant positive correlation between the rational system and three leadership outcomes: extra effort, effectiveness and satisfaction. Effectiveness had a weak positive correlation with the experiential system. Laissez-faire (non-transactional factor) had a negative relationship with the rational system, transformational leadership (r = -.28, p <.01), extra effort (r = -.23, p <.01), effectiveness (r = -.37, p <.01), satisfaction (r = -.29, p <.01), and a positive relationship with transactional leadership (r = .27, p <.01). No significant correlations were found between the two information-processing systems and transactional leadership (see Table 6). Given the low Cronbach’s Alpha reliability and the absence of significant correlations between information-processing and the transactional leadership factor no additional analysis was conducted with transactional leadership. Hypothesis one was supported although the experiential system had a weak correlation with transformational leadership.
Table 6
Pearson’s Product Moment Correlation Coefficients: Relationship Between Information-Processing and Leadership Style

<table>
<thead>
<tr>
<th>Leadership Style</th>
<th>Rational Total</th>
<th>Experiential Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transformational</td>
<td>.50**</td>
<td>.13*</td>
</tr>
<tr>
<td>Transactional</td>
<td>-.03</td>
<td>.03</td>
</tr>
<tr>
<td>Laissez-Faire</td>
<td>-.24**</td>
<td>.01</td>
</tr>
<tr>
<td>Extra Effort</td>
<td>.31**</td>
<td>.11</td>
</tr>
<tr>
<td>Effectiveness</td>
<td>.31**</td>
<td>.14*</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>.29**</td>
<td>.04</td>
</tr>
</tbody>
</table>

Note. N = 183. * p < .05. ** p < .01. Men, n = 103; Women, n = 80.

Regression Analysis

To test for the contribution of the rational system in predicting transformational leadership, three separate regressions were calculated using the transformational leadership scores as the criterion variable. One regression included the total rational and experiential scores and the other regressions included the subscales of the REI-L. The results of this analysis support the correlational results. There was a strong relationship between scores for rational processing and transformational leadership (β = .49, p < .001). The Adjusted R Squared for the rational total shows that 24% of the transformational criterion could be explained by this construct. Rational ability and rational engagement contributed to the transformational leadership scores (see Table 7).
Table 7

Summary of Regression Analysis for Variables Predicting Transformational Leadership

<table>
<thead>
<tr>
<th>Variable</th>
<th>Adjusted R Square</th>
<th>$\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rational Total</td>
<td>.242</td>
<td>.494***</td>
</tr>
<tr>
<td>Ability</td>
<td>.215</td>
<td>.469***</td>
</tr>
<tr>
<td>Engagement</td>
<td>.168</td>
<td>.416***</td>
</tr>
<tr>
<td>Experiential Total</td>
<td>.010</td>
<td>.126 (Sig. 090)</td>
</tr>
<tr>
<td>Ability</td>
<td>.014</td>
<td>.140 (Sig. 059)</td>
</tr>
<tr>
<td>Engagement</td>
<td>.004</td>
<td>.096 (Sig. 096)</td>
</tr>
</tbody>
</table>

N = 183. *** p < .001. Men, n = 103; Women, n = 80.

With reference to gender, results indicated a strong positive relationship between the rational system and transformational leadership for both male and female principals. There was, however, a significant positive correlation between the experiential system and transformational leadership for males only ($r = .27, p < .01$). The experiential system and transformational leadership were unrelated for females ($r = -.08$). The Fisher’s z-test ($Z = 2.44$) shows that the correlation between the experiential system and transformational leadership was stronger for men than for women (see Table 8 and 9). Hypothesis two was supported since gender differences were found between information-processing systems and leadership styles among school principals.
Table 8

Pearson’s product moment correlation coefficients: Relationship between leadership style and information processing for males.

<table>
<thead>
<tr>
<th>Leadership</th>
<th>Rational Total</th>
<th>Experiential Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transformational</td>
<td>.49**</td>
<td>.27**</td>
</tr>
<tr>
<td>Transactional</td>
<td>-.06</td>
<td>-.05</td>
</tr>
</tbody>
</table>

Note. N = 183. Men, n = 103. ** p < .01.

Table 9

Pearson’s product moment correlation coefficients: Relationship between leadership style and information processing for females.

<table>
<thead>
<tr>
<th>Leadership</th>
<th>Rational Total</th>
<th>Experiential Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transformational</td>
<td>.50**</td>
<td>-.08</td>
</tr>
<tr>
<td>Transactional</td>
<td>.16</td>
<td>-.00</td>
</tr>
</tbody>
</table>

Note. N = 183. Women, n = 80. ** p < .01.

Discussion

Study one examined the relationship between information-processing and leadership styles. The rational system shared a positive correlation with transformational leadership and all its subscales. Although this was not predicted, in retrospect, the characteristics of the transformational subscales can be linked to the
rational system. For example, idealized influence (attributed) focuses on whether leaders are perceived to be confident and powerful by his/her followers. Inspirational motivation refers to the way leaders energize their followers by viewing the future with optimism and stressing ambitious goals (Antonakis et al., 2003). Both idealized influence (attributed) and inspirational motivation appears to connect to the analytical, intentional and effortful aspects of the rational system. Intellectual stimulation refers to the leaders’ actions that appeal to his/her followers’ sense of logic and analysis. The characteristics of intellectual stimulation connects well to the rational system, a system that is reason focused, logical, and attuned to logical connections (Epstein, 1998c). Results showed partial support for Hypothesis one that both rational and experiential processing is connected to transformational leadership, with the rational system showing a stronger connection.

According to CEST, conscious thought and behaviour are joint functions of the rational and experiential systems with the balance tipping in the direction of the rational system with increased maturity. The shift from one system to the other is also contingent on the situation and person (Epstein & Pacini, 1999). The strength of the rational system’s connection with transformational leadership found in the current study may, in part, be explained by the age of the sample (M ~ 50 years). Nevertheless, it may be inappropriate to overlook the contribution of the experiential system, as both systems interact and work in parallel (Epstein, 2000).

The weak significant correlation between the experiential system with transformational leadership and leadership effectiveness may be explained by the characteristics of this system. The experiential system continually makes associations, and has been found to be associated with the development of interpersonal and secure relationships (Epstein et al., 2006). In addition to being a
transformational leader it has been suggested that principals may benefit from
displaying interpersonal skills that are associated with individual concern (Barnett &
McCormick, 2004). Although it might be possible to coach school principals in other
leadership skills such as providing intellectual stimulation, a component of
transformational leadership, it is debatable whether they can be trained in
interpersonal skills consistent with individual concern since these are likely to be
stable personal qualities that are developed over time (Barnett & McCormick, 2004).
Given that the experiential system is associated with affect and the development of
interpersonal relationships (Epstein et al., 2006) it may be of particular relevance to
leadership as it has the potential to assist school principals develop greater levels of
awareness and possibly begin to display individual concern. When the principal has
the personal/interpersonal skills right then the school can move to develop learning
(Dinham 2005; Mulford, 2003b).

Given that the cornerstone of transformational leadership is “people effects”
and the ability to transform followers’ beliefs to enhance their well-being (Arnold,
Turner, Barling, Kelloway & McKee, 2007; Leithwood, 1994), the subscales of
transformational leadership appear to be well connected with the experiential system
although this did not reflect strongly in this study. If, for example, leaders wanted to
display individualized consideration, a dimension of transformational leadership,
with each follower, the experiential system seems well suited for this task. The initial
step may be for leaders to develop an interpersonal connection with each follower
prior to offering coaching or mentoring (individualized consideration). When it
comes to effectiveness, leaders who considered themselves to be effective by
achieving outcomes, goals and objectives (Sarros et al., 2002) may also be assisted
by using the experiential system.
The evolution of the human mind, and of consciousness, depends upon the evolution of intuition and reason (Salk, 1982) with the rational system having a relatively new evolutionary development whose long-term adaptive value has yet to be demonstrated (Epstein, 1998). The present dilemma for leadership is to learn how the preconscious experiential system influences leader’s behaviour and how it integrates with the conscious rational system. Although the experiential system is associated with a number of positive (constructive) attributes such as creativity and compassion, it can also be a source of difficulty when it engages in superstitious thinking, prejudice, and biasing the rational system to a point where people are unable to think rationally (Epstein, 2003). Though the experiential system can provide many lessons in life through personal experience it has the potential to elude the articulation and logical analysis of the rational system (Epstein, 2003). When it comes to transformational and transactional leadership it appears that both systems can make an important contribution.

Summary and Conclusion

This study examined the relationship between information-processing and leadership among secondary school principals. Results arising from study one showed a connection between CEST information-processing systems and transformational leadership among secondary school principals. A strong positive connection was found between the rational system and transformational leadership, including the three leadership outcome factors. The weak positive relationship between the experiential system and transformational leadership may, in part, be explained by the negative (destructive) attributes of the experiential system. The next study examines the connection between the constructive and destructive elements of the experiential system and transformational leadership.
CHAPTER 4: STUDY 2 – CONSTRUCTIVE THINKING AND LEADERSHIP

The results of study one showed a strong positive relationship between the rational system and transformational leadership. The significant positive correlation between the experiential system and transformational leadership was found to be unexpectedly weak. The purpose of the second study was to examine the reasons behind the weak positive relationship between the experiential system and transformational leadership among school principals. One explanation for the weak but significant correlation is that the experiential systems can be constructive or destructive; therefore, an explanation might emerge from a closer examination of this dimension. Thus evidence relating to the constructive aspects of the experiential system and its possible connection with transformational leadership is outlined in the next section.

Given the unexpectedly weak but significant correlation between the experiential system and transformational leadership in Study 1, the next step was to examine the properties of the experiential system, noting that the constructiveness of the experiential system operates along a continuum. Constructive thinking is defined as: “the degree to which a person’s automatic thinking – the thinking that occurs without deliberate intention – facilitates solving problems in everyday life at a minimum cost in stress” (Epstein, 1998b, p. 26). Both constructive and destructive thinking are theoretical components of the experiential system (Epstein et al., 1996). The constructive components of the experiential system, as operationally defined by Epstein’s (2001) Constructive Thinking Inventory (CTI) are: global constructive thinking, emotional coping, and behavioural coping. The destructive components are: personal superstitious thinking, categorical thinking, esoteric thinking, and naïve optimism (Epstein, 2001). The following hypothesis was tested:
Hypothesis 1: There will be a positive relationship between constructive thinking and transformational leadership.

The CTI was developed by Epstein to measure the automatic constructive and destructive thoughts of people and the way they view themselves and the world. The well-being and effectiveness of leaders has been found to be influenced by the extent they use constructive thinking. Research has found that leaders who were good constructive thinkers experienced less stress, were found to be happier with their jobs, and reported fewer mental health problems (Green 1988). It appears that the relationship between the experiential system and leadership styles may be mediated by constructive thinking.

Limited research has examined the relationship between constructive thinking and transformational leadership. The studies by Atwater and Yammarino (1993), Dubinsky et al. (1995), and Humphreys and Zettel (2002) are exceptions. Atwater and Yammarino’s study examined the relationship between military leaders’ personal attributes and leadership. Behavioural coping was positively connected to superior ratings of transformational and transactional leadership; however, emotional coping was negatively correlated to subordinates’ ratings of transformational and transactional leadership (Atwater & Yammarino, 1993). Examining the personal characteristics of sales managers with transformational leadership, Dubinsky et al. found no correlations between transformational leadership and behavioural coping and emotional coping among a small group of sales managers (N = 34). When Dubinsky et al. decided to control experience however; they found a partial-order correlation between behavioural coping and inspirational leadership. In an exploratory study Humphreys and Zettel (2002) used a small sample of sales personnel (N = 24) to examine the relationship between salespersons’ self-perceived
leadership styles, behavioural and emotional coping abilities, and objective sales performance. Although behavioural coping exhibited a strong relationship with transformational leader perceptions and sales performance, there was no relationship found with emotional coping (Humphreys & Zettel, 2002).

The mixed results of all three studies may, in part, be explained by their design and sample size. The Atwater and Yammarino (1993), Dubinsky et al. (1995) and Humphreys and Zettel’s (2002) studies used only some of the CTI scales to measure personal attributes of military leaders, sales managers and sales personnel; however, failed to account for the explanation that people process information by two parallel, bi-directional interacting systems (i.e., rational and experiential), and that constructive thinking is influenced by the automatic thinking of the experiential system (Epstein, 1998b). Neither study compared rational and experiential information-processing with transformational and transactional leadership. Another limitation was that the Atwater and Yammarino study used inexperienced leaders who were in their junior or senior year of college. As such, no study has examined the relationship between information-processing, constructive thinking, and transformational leadership among experienced leaders in the educational setting.

Although the previous studies have found positive relationships between constructive thinking and transformational and transactional leadership, these studies did not take into account all the CTI subscales, and that leaders process information by two parallel interacting systems, a rational and experiential system (Epstein, 2000). As such, the present study examined the rational system and all the CTI subscales that make up the experiential system with transformational leadership. It is hypothesized that constructive properties of the experiential system will positively connect with transformational leadership (H1). It is also hypothesized (H2) that...
school principals with high scores on global constructive thinking and experiential processing will result in high scores on transformational leadership, and principals with low scores on global constructive thinking and experiential processing will have low scores on transformational leadership.

Method

Sample and Procedures

The second study collected data on constructive thinking from principals of independent schools in NSW/ACT. One hundred and eighty three surveys containing the Constructive Thinking Inventory (CTI) were sent out to school principals who responded to Study 1. Surveys containing the REI-L, MLQ (5X) and CTI were sent to the remaining two-hundred and eighty-five principals and matched to the original mail-out list in Study 1. One-hundred forty-seven surveys were returned: one-hundred and thirty CTIs from the original one-hundred and eighty-three respondents, (79% return rate) and seventeen full surveys from the remaining two-hundred and eighty-five principals (6% return rate). Approval from the University of Western Sydney Human Research Ethics Committee was obtained to contact respondents at subsequent stages throughout the research program.

The CTI has two built-in lie scales: defensiveness and validity. These scales are used as cut-off points for determining the validity of CTI scores (Epstein, 2001). As recommended by the test manual scores of 1.5 standard deviations or more below the mean on the validity scale or 1.5 standard deviations or more above the mean on the defensiveness scale were considered to be invalid and removed from further analysis. Of the one-hundred and forty-seven CTI questionnaires, twenty-six were removed from further analysis because their scores fell outside the CTI lie scale.
range. Of the one hundred and twenty one principals, 53% were male and 47% were female. Their mean age was 50.8 years (men, M = 51.7 years and women, M = 48.3 years) with a range of thirty-three years to sixty-six years and with the majority aged between forty-six and fifty-five years (57%). The average number of years as principal was 9.5 years (range one to thirty six years, with 36% holding the position between one to five years).

Measures

The three measures used in study two included the Rational-Experiential Inventory-Long Form (REI-L) (Epstein, Pacini, & Norris, 1998), Multifactor Leadership Questionnaire (MLQ) Form 5X (Bass, 1997), and the Constructive Thinking Inventory (CTI) (Epstein, 2001). The details of the REI-L and MLQ (5X) measures are presented in Chapter three.

Constructive Thinking Inventory (CTI).

The measure selected to assess the constructive and destructive properties of the experiential systems was the Constructive Thinking Inventory (CTI) (Epstein, 2001). The initial version of the CTI, consisting of 64-items, was developed by collecting statements and examples of constructive and destructive thinking found in books and articles by leading cognitive therapists. Items were also obtained from undergraduate students who kept records of their most pleasant and unpleasant experiences over a 30-day period (Epstein, 2001; Epstein & Meier, 1989). The original CTI scales were found to have good levels of internal-consistency reliability and impressive evidence of construct validity (Epstein, 1992, 2001; Epstein & Katz, 1992; Epstein & Meier, 1989; Katz & Epstein, 1991). More specifically, the internal
consistency reliability coefficients of its major scales were found to be in the high .80s and low .90s (Epstein, 1990).

After determining that the CTI scales produced promising results when correlated with a variety of criteria for success in living, including self-reported success in the workplace, and success in social relationships (Epstein, 1998a; Epstein & Katz, 1992; Epstein & Meier, 1989; Katz & Epstein, 1991), the measure was expanded (Epstein, 2001). The current version consists of 108-items and is based on a factor analysis of the results from the college student sample (N = 1,500). The reliability coefficients for the 108-item version of the CTI for the normative sample were considered to be satisfactory, with Cronbach’s Alphas ranging from .76 to .92 (Epstein, 2001).

The current CTI (Epstein, 2001) is a 108-item self-report measure used to assess constructive thinking. People respond to the CTI by indicating to what extent they tend to think in constructive and destructive ways (Epstein, 1998c). The CTI uses a 5-point Likert scale to rate statements about feelings, beliefs and behaviours. The descriptors in the Likert scale were: “1” – Definitely False, “2” – Mostly False, “3” – Undecided or Equally True and False, “4” – Mostly True, and “5” – Definitely True. Respondents were instructed to work rapidly and be guided by their first impressions when answering the questions. The CTI questionnaire may be found in Appendix 2.

The CTI provides a global constructive thinking scale and six main scales, with all but one having several subscales. The main scales are: global constructive thinking, emotional coping, behavioural coping, personal superstitious thinking, categorical thinking, esoteric thinking, and naïve optimism. High scores are desirable for the global constructive thinking, emotional coping, behavioural coping, and their
subscales. Low scores are desirable for the personal superstitious thinking, categorical thinking, esoteric thinking, naïve optimism, and their subscales (Epstein, 2001). A summary of the CTI scales, including a typical item from each of the scale is outlined in Table 10.
Table 10
Description of the CTI scales and examples of associated scale item.

Global Constructive Thinking
High scores on the global constructive thinking are flexible thinkers who can adjust their behaviour to appropriately meet the requirements of different situations.
“When unpleasant things happen to me, I don’t let them prey on my mind”

Emotional Coping
People with high scores tend to view potentially stressful situations as challenges rather than threats.
“I don’t let little things bother me”

Self Acceptance
Measures the degree to which people have high self-esteem and a generally favourable attitude toward themselves.
“I am tolerant of my mistakes as I feel they are a necessary part of learning”

Absence of Negative Overgeneralization
Indicates the degree to which people avoid overestimating the generality of unfavourable experiences.
“When something bad happens to me, I feel that more things are likely to follow” (Reverse scored).

Nonsensitivity
Indicates the degree to which people are resilient and able to tolerate uncertainty, disappointment, rejection, and disapproval.
“I don’t let little things bother me”
Absence of Dwelling
Indicates the degree to which people avoid obsessing over negative events.
“My mind often drifts to unpleasant events from the past” (Reverse scored).

Behavioural Coping
Indicates the tendency to automatically think in a way that facilitates effective action.
“I try to make an all-out effort in most things I do”

Positive Thinking
Refers to thinking that is realistically favourable
“I believe it is best, in most situations, to emphasize the positive side of things”

Action Orientation
Refers to a tendency to take effective action when faced with problems rather than procrastinating or obsessing over how to proceed
“I try to make an all-out effort in most things I do”

Conscientiousness
Refers to engagement in planning and careful thought
“When I have a lot of important things to take care of, I make a plan and stick to it”

Personal Superstitious Thinking
Indicates the degree to which people hold private superstitions, such as the belief that if something very good happens, it will be offset or counterbalanced by something bad
“If something good happens to me, I tend to assume it was luck”

Categorical Thinking
People with high scores on categorical thinking are inclined to view the world in black and white terms and overlook the finer distinctions.
“I believe once a criminal, always a criminal”
Polarized Thinking

Refers to a person’s style of information processing

“There are two possible answers to every question, a right one and a wrong one”

Distrust of Others

Is an attitudinal constructs related to content of thought (relates to categorical thinking)

“The only person I completely trust is myself”

Intolerance

Is an attitudinal constructs related to content of thought (relates to categorical thinking)

“I feel if people treat you badly, you should treat them the same way”

Esoteric Thinking

Indicates the degree to which people believe in strange, magical, and scientifically questionable phenomena such as ghosts, astrology, omens, and conventional superstitions.

“I have at least one good-luck charm”

Belief in the Unusual

For example ghosts, mind reading, clairvoyance

“I believe some people have the ability to read other people’s thoughts”

Formal Superstitious Thinking

For example belief in conventional superstitions, astrology, and good and bad omens

“I have at least one good-luck charm”

Naive Optimist

Indicates the degree to which people are unrealistically optimistic.

“I believe that if I do something good, then good things will happen to me”
Over-Optimism
For example, the belief that following a single success, one will always be successful
“If I do well on an important test, I feel like a total success and that I will go far in
life”

Stereotypical Thinking
For example, the belief that everyone should love their parents
“I believe that anyone who isn’t lazy can find a job”

Pollyanna-ish Thinking
For example, the belief that everyone is basically good at heart
“I believe that if I do something good, that good things will happen to me”

Results
The internal reliability coefficients for the main scales of the CTI derived
from the one hundred and twenty one school principals in the current study ranged
from the low .70s to high .80s, with the exception of personal superstitious thinking
(\(\alpha = -0.11\)), categorical thinking (\(\alpha = .30\)), and its subscale distrust of others (\(\alpha = -
.12\)). These factors were excluded from further analysis. Descriptive statistics and
Cronbach’s Alpha results for the Rational-Experiential Inventory-Long Form (REI-
L) and the Multifactor Leadership Questionnaire (MLQ-5X) are presented in Table 5
(see page 91).

Descriptive Statistics
Descriptive statistics and Cronbach’s Alpha results for the Constructive
Thinking Inventory (CTI) are presented in Table 11.
Table 11

Means, Standard Deviations, and *Cronbach’s Alpha* Reliabilities for the CTI principal sample

<table>
<thead>
<tr>
<th>CTI scale/subscale</th>
<th>Number of items</th>
<th>Males (a) M</th>
<th>SD</th>
<th>Females (b) M</th>
<th>SD</th>
<th>Total (c) M</th>
<th>SD</th>
<th>α</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global Constructive Thinking</td>
<td>29</td>
<td>111.86</td>
<td>10.65</td>
<td>114.05</td>
<td>10.58</td>
<td>112.92</td>
<td>10.64</td>
<td>.82</td>
</tr>
<tr>
<td>Emotional Coping</td>
<td>25</td>
<td>95.64</td>
<td>12.69</td>
<td>94.66</td>
<td>11.70</td>
<td>95.04</td>
<td>12.23</td>
<td>.90</td>
</tr>
<tr>
<td>Self Acceptance</td>
<td>7</td>
<td>27.77</td>
<td>3.56</td>
<td>27.32</td>
<td>3.56</td>
<td>27.52</td>
<td>3.56</td>
<td>.90</td>
</tr>
<tr>
<td>Absence of Negative Overgeneralization</td>
<td>4</td>
<td>16.76</td>
<td>2.14</td>
<td>16.43</td>
<td>2.30</td>
<td>16.59</td>
<td>2.22</td>
<td>.65</td>
</tr>
<tr>
<td>Nonsensitivity</td>
<td>8</td>
<td>26.38</td>
<td>4.74</td>
<td>25.92</td>
<td>4.77</td>
<td>27.13</td>
<td>5.20</td>
<td>.82</td>
</tr>
<tr>
<td>Absence of Dwelling</td>
<td>6</td>
<td>23.59</td>
<td>3.84</td>
<td>24.07</td>
<td>3.15</td>
<td>23.78</td>
<td>3.53</td>
<td>.77</td>
</tr>
<tr>
<td>Behavioural Coping</td>
<td>14</td>
<td>57.78</td>
<td>4.89</td>
<td>59.78</td>
<td>4.62</td>
<td>58.78</td>
<td>4.86</td>
<td>.75</td>
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<tr>
<td>Positive Thinking</td>
<td>4</td>
<td>14.76</td>
<td>2.40</td>
<td>16.43</td>
<td>2.11</td>
<td>15.59</td>
<td>2.41</td>
<td>.65</td>
</tr>
<tr>
<td>Action Orientation</td>
<td>7</td>
<td>30.59</td>
<td>2.60</td>
<td>30.76</td>
<td>2.99</td>
<td>30.67</td>
<td>2.78</td>
<td>.72</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>4</td>
<td>16.77</td>
<td>1.56</td>
<td>17.11</td>
<td>1.45</td>
<td>16.95</td>
<td>1.53</td>
<td>.55</td>
</tr>
<tr>
<td>Personal Superstitious Thinking</td>
<td>7</td>
<td>19.14</td>
<td>2.09</td>
<td>19.67</td>
<td>1.76</td>
<td>19.44</td>
<td>1.97</td>
<td>-.11</td>
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<tr>
<td>Categorical Thinking</td>
<td>16</td>
<td>39.69</td>
<td>4.15</td>
<td>39.53</td>
<td>4.13</td>
<td>39.62</td>
<td>4.13</td>
<td>.30</td>
</tr>
<tr>
<td>Polarized Thinking</td>
<td>6</td>
<td>11.92</td>
<td>3.22</td>
<td>11.69</td>
<td>3.31</td>
<td>11.82</td>
<td>3.26</td>
<td>.64</td>
</tr>
<tr>
<td>Distrust of Others</td>
<td>5</td>
<td>17.92</td>
<td>2.18</td>
<td>18.33</td>
<td>2.04</td>
<td>18.10</td>
<td>2.12</td>
<td>-.12</td>
</tr>
<tr>
<td>Intolerance</td>
<td>4</td>
<td>7.10</td>
<td>1.65</td>
<td>6.88</td>
<td>1.41</td>
<td>7.01</td>
<td>1.54</td>
<td>.46</td>
</tr>
<tr>
<td>Esoteric Thinking</td>
<td>13</td>
<td>21.26</td>
<td>7.50</td>
<td>24.97</td>
<td>8.08</td>
<td>23.14</td>
<td>7.95</td>
<td>.82</td>
</tr>
<tr>
<td>Belief in the Unusual</td>
<td>6</td>
<td>12.46</td>
<td>3.74</td>
<td>13.36</td>
<td>4.06</td>
<td>11.29</td>
<td>4.41</td>
<td>.74</td>
</tr>
<tr>
<td>Formal Superstitious Thinking</td>
<td>7</td>
<td>10.69</td>
<td>4.06</td>
<td>13.04</td>
<td>4.29</td>
<td>11.85</td>
<td>4.31</td>
<td>.69</td>
</tr>
<tr>
<td>Naïve Optimism</td>
<td>15</td>
<td>42.96</td>
<td>7.31</td>
<td>45.92</td>
<td>7.28</td>
<td>45.82</td>
<td>7.72</td>
<td>.78</td>
</tr>
<tr>
<td>Over Optimism</td>
<td>5</td>
<td>13.52</td>
<td>3.96</td>
<td>14.69</td>
<td>3.71</td>
<td>14.10</td>
<td>3.87</td>
<td>.83</td>
</tr>
<tr>
<td>Stereotypical Thinking</td>
<td>3</td>
<td>10.71</td>
<td>1.91</td>
<td>9.69</td>
<td>2.12</td>
<td>10.23</td>
<td>2.08</td>
<td>.27</td>
</tr>
<tr>
<td>Pollyanna-ish Thinking</td>
<td>7</td>
<td>20.02</td>
<td>4.04</td>
<td>22.98</td>
<td>3.98</td>
<td>21.48</td>
<td>4.25</td>
<td>.68</td>
</tr>
<tr>
<td>Defensiveness</td>
<td>8</td>
<td>23.21</td>
<td>3.95</td>
<td>22.91</td>
<td>3.93</td>
<td>23.01</td>
<td>3.90</td>
<td>.58</td>
</tr>
<tr>
<td>Validity</td>
<td>8</td>
<td>37.97</td>
<td>2.23</td>
<td>37.63</td>
<td>2.38</td>
<td>37.80</td>
<td>2.30</td>
<td>.30</td>
</tr>
</tbody>
</table>

Note. N = 121. Men, n = 64; Women, n = 57.
Determining the Relationship between Constructive Thinking and Transformational Leadership

The reliabilities for the total rational score, total experiential score and their subscales in study two ranged from .62 to .92. The reliabilities in study two for the main MLQ factors including the three leadership outcomes were: transformational (α = .90), transactional (α = .62), laissez-faire (α = .48), extra effort (α = .77), effectiveness (α = .71), and satisfaction (α = .80).

As in study one, a significant positive correlation was found between the rational system and transformational leadership (r = .56, p < .01). The five-factors of transformational leadership were also strongly correlated with the rational system: idealized influence (attributed) (r = .39, p < .01); idealized influence (behaviour) (r = .45, p < .01); inspirational motivation (r = .54, p < .01); intellectual stimulation (r = .45, p < .01); individualized consideration (r = .31, p < .01). A small but significant positive correlation was found between the experiential system and transformational leadership (r = .19, p < .05). Small, but significant, positive correlations were also found between the experiential system and two-factors of transformational leadership: intellectual stimulation (r = .19, p < .05) and individualized consideration (r = .21, p < .05).

To examine the relationship between constructive thinking and transformational leadership, correlations were computed between the CTI and the MLQ (5X). Hypothesis one was supported as there were significant positive correlations found between the main scales of global constructive thinking, emotional coping and behavioural coping with transformational leadership (see Table 12). Significant positive correlations were also found between emotional coping,
behavioural coping and the subscales of transformational leadership. Significant negative correlations were found between the main scales of global constructive thinking, behavioural coping and laissez-faire leadership.

The behavioural coping subscales, action orientation and conscientiousness were also negatively correlated with laissez-faire leadership. With the exception of absence of negative overgeneralization, no significant correlations were found between constructive thinking and transactional leadership (see Table 13).
Table 12

Descriptive Statistics, Reliabilities and Intercorrelations between Predictors of Leadership

<table>
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<tr>
<th></th>
<th>M</th>
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<th>12</th>
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<tbody>
<tr>
<td><strong>Information-Processing</strong></td>
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<tr>
<td>1. Rational System</td>
<td>81.13</td>
<td>9.36</td>
<td>.86</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>2. Experiential System</td>
<td>68.15</td>
<td>10.45</td>
<td>.01</td>
<td>.92</td>
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<tr>
<td><strong>Leadership</strong></td>
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<tr>
<td>3. Transformational Total</td>
<td>67.43</td>
<td>7.51</td>
<td>.56**</td>
<td>.19*</td>
<td>(.90)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>4. Transactional Total</td>
<td>22.27</td>
<td>4.81</td>
<td>-.03</td>
<td>-.03</td>
<td>.16</td>
<td>(.62)</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>5. Laissez-Faire Leadership</td>
<td>2.61</td>
<td>2.05</td>
<td>-.32**</td>
<td>.02</td>
<td>-.35**</td>
<td>.29**</td>
<td>(.44)</td>
<td></td>
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<tr>
<td><strong>Constructive Thinking</strong></td>
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</tr>
<tr>
<td>6. Global Constructive Thinking</td>
<td>112.92</td>
<td>10.64</td>
<td>.44**</td>
<td>.07</td>
<td>.50**</td>
<td>-.08</td>
<td>-.25**</td>
<td>(.84)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>7. Emotional Coping</td>
<td>95.17</td>
<td>12.19</td>
<td>.34**</td>
<td>-.03</td>
<td>.35**</td>
<td>-.14</td>
<td>-.13</td>
<td>.87**</td>
<td>(.90)</td>
<td></td>
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</tr>
<tr>
<td>8. Behavioural Coping</td>
<td>58.75</td>
<td>4.85</td>
<td>.46**</td>
<td>.05</td>
<td>.47**</td>
<td>.02</td>
<td>-.30**</td>
<td>.69**</td>
<td>.43**</td>
<td>(.75)</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>9. Esoteric Thinking</td>
<td>23.05</td>
<td>7.98</td>
<td>.02</td>
<td>.29**</td>
<td>-.03</td>
<td>.12</td>
<td>.03</td>
<td>-.21*</td>
<td>.03</td>
<td>(.82)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Naïve Optimism</td>
<td>44.39</td>
<td>7.42</td>
<td>-.02</td>
<td>.18*</td>
<td>.03</td>
<td>.15</td>
<td>-.08</td>
<td>-.05</td>
<td>-.23**</td>
<td>.18*</td>
<td>.38**</td>
<td>(.78)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Defensiveness</td>
<td>23.06</td>
<td>3.93</td>
<td>.08</td>
<td>-.07</td>
<td>.06</td>
<td>-.09</td>
<td>-.07</td>
<td>.44**</td>
<td>.53**</td>
<td>.22**</td>
<td>-.06</td>
<td>.07</td>
<td>(.58)</td>
<td></td>
</tr>
<tr>
<td>12. Validity</td>
<td>37.80</td>
<td>2.30</td>
<td>.14</td>
<td>.07</td>
<td>.10</td>
<td>.12</td>
<td>.17*</td>
<td>.06</td>
<td>.11</td>
<td>.07</td>
<td>-.19</td>
<td>-.09</td>
<td>-.06</td>
<td>(.30)</td>
</tr>
</tbody>
</table>

Note. The information-processing, leadership and constructive thinking results were derived from self-reported measures. Reliability coefficient estimates (Cronbach’s α) are in parenthesis along diagonals. N = 121. * p < .05. ** p < .01.
Table 13
Descriptive Statistics, Reliabilities, and Intercorrelations between Constructive Thinking Subscales and Leadership.

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>1</th>
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</thead>
<tbody>
<tr>
<td><strong>Emotional Coping</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self Acceptance</td>
<td>27.52</td>
<td>3.56</td>
<td>.21**</td>
<td>-.15</td>
<td>-.01</td>
</tr>
<tr>
<td>Absence of Negative</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overgeneralization</td>
<td>16.59</td>
<td>2.22</td>
<td>.31**</td>
<td>-.16*</td>
<td>-.19*</td>
</tr>
<tr>
<td>Non-sensitivity</td>
<td>27.13</td>
<td>5.20</td>
<td>.30**</td>
<td>-.01</td>
<td>-.05</td>
</tr>
<tr>
<td>Absence of Dwelling</td>
<td>23.78</td>
<td>3.53</td>
<td>.36**</td>
<td>-.14</td>
<td>-.17*</td>
</tr>
<tr>
<td><strong>Behavioural Coping</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive Thinking</td>
<td>15.59</td>
<td>2.41</td>
<td>.25**</td>
<td>.14</td>
<td>-.03</td>
</tr>
<tr>
<td>Action Orientation</td>
<td>30.67</td>
<td>2.78</td>
<td>.47**</td>
<td>-.09</td>
<td>-.38**</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>16.77</td>
<td>1.56</td>
<td>.30**</td>
<td>-.00</td>
<td>-.27**</td>
</tr>
<tr>
<td><strong>Categorical Thinking</strong></td>
<td></td>
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<tr>
<td>Polarized Thinking</td>
<td>11.82</td>
<td>3.26</td>
<td>-.14</td>
<td>.07</td>
<td>-.04</td>
</tr>
<tr>
<td>Esoteric Thinking</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Belief in the Unusual</td>
<td>11.29</td>
<td>4.41</td>
<td>.06</td>
<td>.18*</td>
<td>.08</td>
</tr>
<tr>
<td>Formal Superstitious</td>
<td>11.85</td>
<td>4.31</td>
<td>-.04</td>
<td>.03</td>
<td>-.04</td>
</tr>
<tr>
<td>Thinking</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Naïve Optimism</td>
<td>14.10</td>
<td>3.87</td>
<td>-.02</td>
<td>.07</td>
<td>-.10</td>
</tr>
<tr>
<td>Pollyanna-ish Thinking</td>
<td>21.48</td>
<td>4.25</td>
<td>.00</td>
<td>.10</td>
<td>-.03</td>
</tr>
</tbody>
</table>

Note. 1 = Transformational Total, 2 = Transactional Total, 3 = Laissez – Faire Leadership. N = 121. * p < .05. ** p < .01.

Interaction between Information-Processing and Constructive Thinking

Rational processing, experiential processing, and global constructive thinking were entered into a regression to predict transformational leadership. Results indicated that rational processing ($\beta = .42$, p < .001), global constructive thinking ($\beta = .30$, p < .001) and scores for experiential processing ($\beta = .16$, p < .001) significantly predicted transformational leadership scores. Forty-one percent of the transformational leadership criterion could be explained by combining the rational, experiential and global constructive thinking constructs. In addition, the constructive
elements of the experiential system, that is, emotional coping and behavioural coping were combined with rational processing to predict transformational leadership. Results indicated that emotional coping ($\beta = .17, p < .007$), behavioural coping ($\beta = .21, p < .001$), and rational processing ($\beta = .42, p < .001$) accounted for thirty-nine percent of the criterion in the prediction of transformational leadership. Constructive properties of the experiential system were found to be positively connected to transformational leadership; therefore Hypothesis one was supported.

Comparison between Experiential Processing and Transformational Leadership

The next section outlines the results of ANOVA that was used to compare experiential processing with transformational leadership. Specifically, it was suggested that school leaders with high scores on constructive thinking and experiential processing will score high on transformational leadership. By contrast, leaders who rely on their experiential system, but do not use it constructively, should show lower levels of transformational leadership.

To test Hypothesis two both constructive and experiential processing scores were divided into high vs. low groups using a median split. A 2(constructive thinking: high vs. low) X 2(experiential processing: high vs. low) factorial ANOVA was calculated for transformational leadership scores. Participants with high scores in constructive thinking scored higher in transformational leadership ($M = 71.26, SD = 6.14$) than participants with low scores for constructive thinking ($M = 63.83, SD = 8.25$), $F(1,142) = 20.19, p < .001$. The main effect of experiential processing was non-significant at the 5% level, $F(1,142) = 3.46, p = .065$. The interaction of the participants with high experiential processing and low global constructive thinking scores ($M = 66.20, SD = 7.19$) did not score disproportionately lower in
transformational leadership $F(1,142) = .028, p = .876$ (see Figure 5). As predicted the ANOVA results showed that school principals with high scores on global constructive thinking and experiential processing obtained high scores on transformational leadership. School principals with low scores on experiential processing and were high on global constructive thinking did not obtain low scores on transformational leadership. These results provide partial support for Hypothesis 2.

![Figure 5. Transformational leadership scores for participants high and low in Global Constructive Thinking (GCT) and Experiential Information Processing.](image)

Discussion

Study two confirmed the strong positive relationship between the rational system and transformational leadership found in study one. Even with twenty one participants removed from the study two’s sample because their scores fell outside
the lie scales’ ranges it was still possible to replicate the strong correlations found in Study 1. The results in study two further reduce the possibility that Study 1’s results were influenced by social desirability bias (Edwards, 1957; Doty & Glick, 1998; Podsakoff, MacKenzie, Lee & Podsakoff, 2003; Spector, 2006) through self-report measures. Moreover, Study two’s results demonstrated a strong positive relationship between the constructive aspects of the experiential system and transformational leadership. Global constructive thinking, emotional coping, behavioural coping showed strong positive correlations with transformational leadership.

The aim of the second study was to give explanation for the weak but significant positive relationship between the experiential system and transformational leadership found in Study 1. Part of the reason for the weak but significant positive correlation found in study one appears to be because of the destructive properties of the experiential system. Results of study two support the Hypothesis one that only the constructive properties of the experiential system were positively connected to transformational leadership, and that constructive thinking moderated the connection between experiential processing and transformational leadership. The findings of study two were predicted as factors, such as global constructive thinking, have been found to be connected to leaders’ well-being, and job satisfaction (Green 1988). In addition, people with high scores on global constructive thinking tend to be accepting of themselves and others, have a positive outlook to life, and view their lives with purpose and direction (Epstein, 1998a). Having found a connection between factors of transformational leadership (intellectual stimulation and inspirational motivation) and the two information-processing systems suggests that transformational leadership requires leaders to connect at both the cognitive and emotional levels with followers (Albrecht, 2005). These results extend the findings of study one by
suggesting that both the rational system and constructive properties of the experiential system are connected to transformational leadership.

Previous studies such as those by Atwater and Yammarino (1993), Dubinsky et al. (1995), and Humphreys and Zettel (2002) that examined the relationship between constructive thinking and transformational leadership managed to only find positive correlations between behavioural coping and transformational leadership. The outcome may have been different if these researchers used experienced, well-established leaders, examined leaders in other contexts such as education, and took into consideration that leaders process information by two parallel interacting systems, a rational and experiential system (Epstein, 2000).

The Dubinsky et al. (1995) study examined the relationship between transformational leadership and the personal characteristics of sales managers. Their results indicated that only behavioural coping was positively connected to inspirational motivation, a subscale of transformational leadership (r = .29, p <.10). This finding was considerably weaker compared to the results obtained in the present study between behavioural coping and inspirational motivation (r = .47, p <.01). Part of the reason may be because the sales managers in the Dubinsky et al. study were all male, and that the manager/employee relationship in the sales context may be distinct from the supervisor/subordinate relationship in the educational context. These researcher also used a relatively small sample (N = 34) that may have also attributed to the weak results.

As with the Dubinsky et al. (1995) study, Atwater and Yammarino (1993) examined personal characteristics to predict leadership behaviour; however, they used a sample of military academy leaders. Likewise these researcher found that only behavioural coping was positively connected to transformational leadership (r = .22,
These results are considerably weaker compared to that obtained in the present study. Atwater and Yammarino have acknowledged that some of the reasons for their weak and limited results may be because of the military context and the limited sample. They suggested that the sample was adequate for an exploratory study; however, a cross-validation of the results using a larger, more diverse sample of leaders may be required. In response to this suggestion this study used a large diverse sample of male and female leaders that may have contributed to the strong positive results.

Consistent with the Atwater and Yammarino (1993) and Dubinsky et al. (1995) studies, Humphreys and Zettel (2002) found that behavioural coping had a strong positive connection with transformational leadership ($r = .54, p < .01$) and objective sales performance ($r = .60, p < .01$). However, no connection was found between emotional coping, transformational leadership and sales performance even though intuitively one can make the connection between high self-acceptance (sub-scale of emotional coping) and effective sales performance (Humphreys and Zettel, 2002).

The present research extends the work of Atwater and Yammarino (1993), Dubinsky et al. (1995) and Humphreys and Zettel (2002) by initially examining the full aspects of the rational and experiential systems with the FRLT (Bass, 1985a), using a large sample of experienced male and female educational leaders, and by making use of all CTI scales, including the two lie-scales. The present research supports the Dubinsky et al.’s (1995), Atwater and Yammarino’s (1993), and Humphreys and Zettel’s (2002) findings that behavioural coping is positively connected to transformational leadership, but also suggests that transformational
leadership is connected to the rational system, global constructive thinking, emotional coping, and their subscales.

With the exception of idealized influence (attributed), a subscale of transformational leadership, all other subscales focus on the behaviour of leaders (Elliott, 2000). The results of this study suggest that transformational leadership may have cognitive underpinnings that are connected to behaviour. In an educational setting transformational leaders are likely to be a flexible thinker who can adjust their behaviour to meet the needs of a different situation (global constructive thinking), and view potentially stressful situations as challenges rather than as threats (emotional coping) (Epstein, 2001).

Transformational leaders who demonstrated good behavioural coping are also likely to think in ways that facilitate effective action (behavioural coping). The subscales of behavioural coping suggest that leaders are likely to emphasize the positive side of situations and to think in a manner that makes unpleasant tasks minimally distressing (positive thinking), take effective action when faced with problems (action orientation), and engage in planning and careful thought (conscientiousness) (Epstein, 2001).

Given that this study found a strong positive relationship between transformational leadership and emotional coping this may suggest that effective leaders (not all leaders) have strong abilities and skills associated with emotional coping. Transformational leaders with high emotional coping are likely to operate with high self-esteem and hold a generally favourable view of themselves (self-acceptance), avoid overestimating the generality of unfavourable experiences (absence of negative overgeneralization), be resilient and able to tolerate uncertainty (nonsensitivity), and avoid obsessing over negative events (absence of dwelling).
The ANOVA results suggest that leaders who rated themselves high on transformational leadership appear to operate with high levels of global constructive thinking. It was hypothesized that school principals with low scores on global constructive thinking and experiential processing will result in low scores on transformational leadership. Contrary to expectation the results indicated that principals with low experiential processing had relatively high scores on transformational leadership. It may be the case that principals may avoid using the experiential system; however when they do, they use it constructively.

Transformational leaders who are high global constructive thinkers may be aware that the experiential system has both constructive and destructive properties and as a result may register low experiential scores. Transformational leaders with low experiential scores may be favouring the use of only the constructive properties of the system such as global constructive thinking, emotional coping and behavioural coping together with their subscales, and try to avoid using the destructive properties such as categorical thinking and personal superstitious thinking. Furthermore, the low constructive thinking scores may not be as low compared to the rest of the population. For example, the mean and standard deviation scores in this study (M = 112.92, SD = 10.64) (N = 121) were higher compared to the large normative sample (M = 106.81, SD = 15.19) (N = 908) used by Epstein (2001) to measure constructive thinking.

Summary and Conclusions

Study two replicated the results of study one by confirming the strong positive relationship between the rational system and transformational leadership. Results of study two also extended the previous study by providing evidence of a strong positive connection between the constructive elements of the experiential
system and transformational leadership. The first two studies are correlational in design and consequently have limitations explaining cause and effect. In response to this limitation, study three is an intervention study designed to confirm if changes could be achieved in transformational leadership by developing rational thinking and constructive aspects of the experiential system among a group of experienced school leaders.
The previous two studies showed a strong positive connection between the rational system and constructive elements of the experiential system with transformational leadership. A limitation of the first two studies is that the results cannot show directly whether differences or changes in rational and experiential information-processing cause changes in leadership style, as these studies have correlational designs. Study three addresses this limitation by examining the causal relationship between information-processing and leadership style using a coaching intervention study.

Since the 1980s, much has been said in the literature about school reform and school leadership (Owens & Valesky, 2007). Some of the major reforms that have taken place internationally include: (a) increases in the size of schools, (b) changes in management structure, (c) the implementation of site-based management, (d) devolution of authority and responsibility from central government to local council, (e) delegation of organizational decision-making to the school level, (f) increase in school autonomy, policies of decentralization and deregulation, and (g) major complex educational reforms (Kruger, van Eck & Vermeulen, 2005).

With major reforms taking place, schools have seldom provided training in the workplace and have assumed that all people in the organization, including school leaders, can think clearly, rationally, and effectively about their jobs and how to do them well (Kilburg, 2000). The first two studies in this thesis have shown that the rational system and constructive elements of the experiential system have a strong positive association with transformational leadership. The next step is to determine if school leaders can be coached using the rational system and constructive elements of
the experiential system, and whether this will lead to an increase in the use of transformational techniques. Previous research has shown that transformational leaders are able to engage and inspire their followers, tap their motivations, and energize their emotional and cognitive resources (Owens & Valesky, 2007).

The traditional training models have given way to new coaching models because old models were not been able to achieve sustained behavioural changes (Zeus & Skiffington, 2000). Research conducted at the Centre for Creative Leadership suggests that only 8 to 12% of people who attended training courses successfully translated their new skills and knowledge into performance improvement. The main reason for the low percentage is because the training programmes did not allow people to put the skills into practice and there was no feedback or ongoing support (Zeus & Skiffington, 2000). During the 1960s the business world looked at sports coaching and adapted some of the techniques in training and development. These techniques have been developed and enhanced by the coaching industry. The coaching practice approach was selected in this study because it allowed the client to set the agenda and determine the goals to be achieved (Grant & Greene; 2001, Latham & Locke, 2002; Locke & Latham, 2007). Coaching practice include: (a) life skills coaching, (b) business coaching, and (c) executive coaching (Zeus & Skiffington, 2000).

The coaching intervention programme developed for this study focuses on executive coaching because executive coaching is about developing:
A helping relationship between a client who has managerial authority and responsibility in an organization and a consultant who uses a wide variety of behavioural techniques and methods to help the client achieve a mutually identified set of goals to improve his or her performance and, consequently, to improve the effectiveness of the client’s organization within a formally defined coaching agreement. (Kilberg, 2000, p. 65-67).

More specifically, the coaching intervention programme set out to determine if behavioural changes could be achieved in transformational leadership by providing leaders with real-life corrective experiences. The aim of the real-life corrective experiences is to modify old experiential beliefs in order to accommodate new, more adaptive ones (Epstein, 1998a). By working with an external coach the school principal can begin to modify old experiential beliefs to cope and respond more effectively with the unprecedented levels of change faced by the school, and in the event of problematic situations or conflicts (Kruger et al., 2005).

Over the last fifteen years coaching models have been based on the principles of psychology, including positive psychology (Biswas-Diener & Dean, 2007; Snyder & Lopez, 2007) and solution-focused brief therapy (Furman & Ahola, 1994; McKeel, 1996) aiming to meet the training needs of businesses and organizations. Coaching may involve clarifying values, offering support and encouragement, and planning new ways of action (Zeus & Skiffington, 2000). To successfully coach managers and executives it is necessary for the coach to have a good understanding of the basics of human emotion and cognition, how they influence behaviour, and
how they can be modified in ways that assist their clients to conduct their jobs more effectively (Kilburg, 2000).

Although the relationship between emotions and cognition is complex (Zeus & Skiffington, 2000), CEST is well suited to address this complexity. Results of Study one suggest that the rational system complements management learning, as it can assist leaders make logical inferences, and to solve abstract problems through the use of language and conversation. Further, the rational system appears to link with Kolb’s (1984) experiential learning theory by facilitating the dialogical process, a process that is thought to be in continual flux and movement (Kayes, 2002). The experiential system, on the other hand, with its intimate association with affect, can facilitate the leader’s interpersonal relations with their followers (Epstein, 1998b). The most important thing that CEST can contribute is to facilitate leaders’ understanding of their experiential system, a system that operates at the preconscious and conscious levels. Studies one and two only suggest this in as much as the experiential system is used constructively. By doing so, leaders can better control for their biases and also behave relatedly, objectively, and realistically (Epstein, 2003). Effective leadership then depends on the leader’s ability to overcome potential egocentric and defensive biases in order to make accurate judgments about where the follower is and where they need to go next (Chemers, 2000).

In addition to the findings of study one and two, the development of the coaching intervention programme is a direct response to the absence of controlled research that examines the successful application of clinically based methods and theories aimed at changing the behaviour of people in the leadership context (Kilburg, 2000). The following hypotheses were examined:
Hypothesis 1: There will be a significant positive difference between the self-reported transformational leadership pre-test and post-test scores for the intervention group.

Hypothesis 2: There will be a significant positive difference between the intervention and control group on transformational leadership scores as rated by school staff.

Method

As an experienced counselling psychologist I delivered the coaching intervention programme using several specialised skills, such as active listening, paraphrasing, and positive psychology to enhance the implementation of the programme.

Sample and Procedure

In January 2007, forty-two letters were sent out to school principals who previously responded to either study one or two. The forty-two school principals were selected because their schools were located in the Sydney metropolitan area, making them accessible to the researcher. A total of seventeen (41%) responded. Of the seventeen responses only four agreed to participate in the coaching intervention programme. In order to recruit additional participants the school had to be an independent school and located in the Sydney metropolitan area. An additional sixty-one letters were sent to principals in other independent schools in the Sydney metropolitan area. From the fifty-one (49%) that responded, ten agreed to participate. From the fourteen participants, the first eight responses were allocated to the intervention group and the remaining six to the control group. The main reason for the eight/six split versus the seven/seven split was because of accessibility. Given
that some of the schools were located outside the Sydney Metropolitan it was not possible for the researcher to administer the coaching intervention program. The eight school principals in the intervention group focused on developing their rational system and constructive elements of the experiential system, that is, behavioural and emotional coping and their subscales. All school staff in the fourteen schools were issued with a covering letter and asked to rate their school principal using the MLQ (5X) questionnaire. The coaching intervention programme was conducted over a ten-week period during Terms one and two, 2007.

Intervention Group

Of the eight principals in the intervention group four were male and four were female. Their mean age was 52.5 years (men, M = 49.5 years and women, M = 55.5 years). The average number of years in the teaching profession was thirty one, with an average of nine years as principal. On average, these schools had ninety sevthirty eight teaching staff and thirty eight support staff. Five school principals indicated that they had engaged in school restructuring programme over the last five years. All eight schools were Christian independent schools located in the Sydney metropolitan area. Five of the schools were girls-only schools and the remaining three were co-educational schools.

Control Group

Of the six principals in the control group three were male and three were female. Their mean age was 53.3 years (men, M = 53.6 years and women, M = 53.0 years). The average number of years in the teaching profession was thirty two, with an average of thirteen years as principal. On average, these schools had ninety four teaching staff and thirty five support staff. Five of the six school principals indicated
that they had engaged in school restructuring programme over the last five years. Five schools were Christian independent schools and one school was a non-denominational independent school. Five schools were located in the Sydney metropolitan area and one school was located south of Sydney. Three of the schools were girls-only schools, and the remaining three were co-educational schools. The sample size, school type and staff response rate is presented in Appendix 5.

Teaching Staff

At the commencement of the coaching intervention programme all school staff in the fourteen schools were invited to rate their school principal using the MLQ (5X) questionnaire.

Procedure and Participants

At the start of term one, 2007 a total of nine-hundred MLQ (5X) questionnaires were distributed to teachers in the intervention group. During the ten-week coaching intervention program a total of two-hundred and forty-two pre and post MLQ (5X) questionnaires were returned and matched, representing a 27% return rate. Of the two-hundred and forty-two teacher responses fifty-eight (24%) were male and one-hundred and eighty-one (76%) were female. Their mean age was 44.1 years (men, M = 42.8 years and women, M = 44.5 years). The average number of years in the teaching profession was eighteen, with an average of seven years working in the present school. The majority of the school staff rated themselves lower in the organization than the school principal. Only 0.8% rated themselves on an equivalent or higher level to the school principal.

Also at the start of term one, 2007 a total of six-hundred MLQ (5X) questionnaires were also distributed to teachers in the control group. During the ten-
week period a total of one-hundred and nine pre and post MLQ (5X) questionnaires were returned and matched, representing an 18% return rate. Of the one-hundred and nine teacher responses thirty-two (29%) were male and seventy-seven (71%) were female. Their mean age was 43.4 years (men, $M = 42.3$ years and women, $M = 43.8$ years). The average number of years in the teaching profession was eighteen, with an average of eight years working in the present school. The majority of the school staff rated themselves lower in the organization than the school principal. Only 0.9% rated themselves on an equivalent or higher level to the school principal. The majority of the teaching staff (99.1%) rated themselves lower in the organization than the school principal.

Measures

Intervention Group

Before the commencement of the coaching intervention programme each principal received a survey consisting of a short demographic questionnaire, the Rational-Experiential Inventory-Long Form (REI-L), and the Constructive Thinking Inventory (CTI). Details of the REI-L are presented in Chapter three, and details about the CTI can be found in Chapter four. The results of the REI-L and CTI measures were used to assist the school principal set the agenda and determine the weekly goals. I administered the coaching intervention programme to the school principals in the intervention group through individual one-hour weekly meetings.
Control Group

Principals allocated to the control group did not receive or have access to the coaching intervention programme. Apart from the initial meeting at the beginning and end of the ten-week period no contact was made by the researcher.

Implementation of the Coaching Intervention Programme

The coaching intervention programme was based on Epstein’s constructive thinking programme (Epstein, 1998a). More specifically, the weekly goals were based on selected items from the REI-L and CTI measures. The sequence of the coaching intervention programme consisted of the following steps:

Step 1. During the initial meeting the school principal was presented with the coaching intervention work booklet and I explained the structure of the programme, the CEST information-processing systems and constructive thinking. Each principal was provided with specific feedback about their REI-L and CTI results.

To enable school principals better understand their information-processing systems and constructive thinking they worked through two sample situations aimed at identifying the leader’s construal (initial thought), secondary mental response, and behavioural outcome (Epstein, 1998a). The first sample situation involved explaining the destructive and constructive sequences when a friend called Mary who did not respond by saying “Hello”. The initial destructive construal was: “Mary is a snob”, secondary mental responses: “Mary thinks she’s better than me. I’ll show her what that feels like!”, and behavioural outcomes: Develops antagonistic relationship with Mary (See Appendix 3).

The second situation required the school principal to write down their response to the following scenario: “You are about to give a speech to a large
distinguished group of people and you can’t find your notes.” One principal recorded
the following responses: construal (e.g., “This will be a disaster”) (1), secondary
mental response (e.g., “Do something to retrieve this”) (7), and behavioural
outcomes (e.g., “Complete the three step preparation”) (7). The school principal was
then asked to rate each response using a 7-point scale. The descriptors in the 7-point
scale were: “1” – very destructive, “2” – moderately destructive, “3” – slightly
constructive, “4” – neither destructive or constructive, “5” – slightly constructive,
“6” – moderately constructive, and “7” – highly constructive. The rating of the
school principal is shown in parenthesis following the response (see above). For
responses that were rated three or below, the school principal was encouraged to
come up with a constructive alternative. An alternative constructive response
generated by this principal was: “Here’s a challenge. I’ve done this before.” (6). The
school principal later rated the response as moderately constructive.

School principals were then required to complete a situation worksheet each
week, and then record their initial construal, secondary mental response, and
behavioural outcomes. The situation needed to be a realistic event that needed to be
addressed during the week (e.g., The school principal discovered that there were only
X number of confirmed enrolments in kindergarten for 2008).

Step 2. The researcher then asked the school principal to select ten specific
items, four from the rational system (REI-L scale), two from global constructive
thinking (CTI scale), two from emotional coping (CTI scale), and two from
behavioural coping (CTI scale). The school principal focused on applying and
developing these items during the forthcoming week. For example, if the school
leader wanted to further develop their rational system, they may have selected the
following item from the REI-L scale, “I will provide clear, explainable reasons for
my decisions.” An example of an item from the CTI scale on behavioural coping was: “When I have a lot of work to do by a deadline, I will not waste time worrying about it instead I will just do it.” At the conclusion of the initial meeting the researcher informed the principal’s secretary about the ten identified items. During the following week the principal’s secretary sent an email and/or gave a hard copy of the two identified items to the school principal at the start of each day. Each item commenced with the words “Today I shall ….” and then the item was recorded. For example, an item from rational thinking stated: “Today I shall provide clear, explainable reasons for my decisions.” A follow-up appointment was made with the principal during the following week.

Step 3. During the follow-up meeting the school principal commented on a situation and explained how the selected ten items influenced their construals, secondary mental responses, and behavioural outcomes. If the construal, secondary mental response, and behavioural outcome were destructive the researcher worked with school principals to develop a set of alternative constructive responses. At the end of the session principals were given the opportunity to select ten new items to work on during the following week. The remaining seven meetings typically involved working through the identified situations or scenarios, evaluating the ten selected items, and selecting ten new items for the following week. A one-hour semi-structured interview was conducted during the last session. The semi-structured interview was not part of the coaching intervention programme, but was designed to evaluate the effectiveness of the programme and how it could be improved.

Design

Set up as a pre-test, post-test, control-group design, this study was conducted in the secondary school setting. The study combined both quantitative and qualitative
approaches to evaluating the potential causal relationship between information-processing and transformational leadership. The qualitative data was used as part of a triangulation process (Jick, 1983), particularly given the small sample size (Banister, Burman, Parker, Taylor, & Tindall, 1994). The next section discusses the semi-structured interview process used to evaluate the coaching intervention programme.

Interview Process

Before the first question was asked, adequate time was devoted to developing rapport and putting the school principal at ease. The purpose of the semi-structured interview was then explained. All interviews were conducted in essentially the same manner in principals’ offices. A total of nine questions were asked during the interview, with the length of the interviews ranging from ten minutes to twenty-six minutes.

Interview Questions

The following questions were presented during the semi-structured interview.

Q. 1 When you look back over the last ten weeks what has changed in the way you work through situations?

Q. 2 Are there aspects of the coaching intervention programme you found difficult to understand or implement?

Q. 3 Apart from working with school principals what other application does the coaching intervention programme have within the educational context?

Q. 4 Was the length of time, that is, 10-weeks adequate? If not, how long would be a realistic time for lasting cognitive and behavioural change to occur?

Q. 5 Were the number of focus items set each day adequate?
Q. 6 Apart from receiving notification of the focus items via email each morning can you think of another way the focus items could be reinforced?

Q. 7 What are the limitations of the coaching intervention programme?

Q. 8 How can the coaching intervention programme be improved?

Q. 9 Other comments?

Recording of responses

Interviews of the eight principals were recorded using a digital voice recorder. The digital recorder was placed within the participant’s reach to press the pause button. The interviews were transcribed within twelve hours to maximize recall (Grbich, 1999). The interviews yielded a large amount of data in the form of transcripts and the researcher’s own recollections and interpretations of the interview process. Based on the recommendations of Marshall and Rossman (2006) six steps were followed during the analyses phase. These were: (a) organizing the data, (b) immersion in the data, (c) generating categories and themes, (d) coding the data, (e) offering interpretations through analytic memos, and (f) searching for alternative meanings.

Results and Discussion

Study one provided norms for the REI-L and MLQ scores, and study two provided norms for the CTI scores for school principals from this population.

Quantitative results

The following statistical analysis was completed using the large sample of school staff who rated their school principals at the start and end of the 10-week
coaching intervention program. A one-sample t-test was used to compare the rational and experiential M and SD scores on the REI-L and MLQ (5X) for the intervention group and control group with the results of study one (see Table 14). For rational and experiential information-processing there was a significant difference found in favour of the total rational score for the control group compared to study one participants’ results, \( t(182) = 7.62, p < .0001 \). There was a significant difference found in favour of the experiential score for study one participants compared to the intervention group, \( t(182) = .41, p < .0001 \). With reference to leadership style there was a significant difference found in favour of the transformational score for the intervention group compared to Study 1, \( t(182) = 8.32, p < .0001 \). For the intervention group significant differences were also found in favour of study one for Attributed Charisma, \( t(182) = 16.85, p < .0001 \), Idealized Influence, \( t(182) = 3.50, p < .0006 \), and Intellectual Stimulation, \( t(182) = 8.57, p < .0001 \) compared with the same subscales in Study 1. No significant differences were found between the transformational scale findings for the control group and the study one participants.

The one-sample t-test was also used to compare the constructive thinking M and SD scores on the CTI for the intervention group and control group with study two (see Table 15). There was a significant difference found in favour of study two for global constructive thinking compared to the intervention group, \( t(146) = 4.36, p < .0001 \). There were significant differences found in favour of study two for behavioural coping compared to both the intervention group, \( t(146) = 5.60, p < .0001 \) and control group \( t(146) = 6.87, p < .0001 \).
Table 14
Comparison of MLQ (5X) Mean Scores for Intervention Group, Control Group and Study 1.

<table>
<thead>
<tr>
<th>Scales</th>
<th>Intervention Group</th>
<th>Control Group</th>
<th>Study 1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M  SD</td>
<td>M  SD</td>
<td>M  SD</td>
</tr>
<tr>
<td>REI-L Scales</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rational Total</td>
<td>81.00 5.42</td>
<td>86.16* 8.54</td>
<td>81.22 8.90</td>
</tr>
<tr>
<td>Experiential Total</td>
<td>64.25 9.75</td>
<td>66.50 10.44</td>
<td>67.43* 10.39</td>
</tr>
<tr>
<td>MLQ (5X) Scales</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transformational Total</td>
<td>63.25 7.99</td>
<td>67.00 3.88</td>
<td>67.66* 7.19</td>
</tr>
<tr>
<td>Attributed Charisma</td>
<td>11.25 1.03</td>
<td>11.83 1.83</td>
<td>12.43* 2.11</td>
</tr>
<tr>
<td>Idealized Influence</td>
<td>13.62 2.50</td>
<td>15.00 .63</td>
<td>14.26* 1.83</td>
</tr>
<tr>
<td>Inspirational Motivation</td>
<td>14.12 1.72</td>
<td>13.83 .75</td>
<td>14.11 1.80</td>
</tr>
<tr>
<td>Intellectual Stimulation</td>
<td>11.87 1.95</td>
<td>13.16 1.47</td>
<td>13.07* 2.06</td>
</tr>
<tr>
<td>Individualized Consideration</td>
<td>12.37 2.32</td>
<td>13.50 1.04</td>
<td>13.77 1.60</td>
</tr>
</tbody>
</table>

Table 15

Comparison of CTI Mean Scores for Intervention Group, Control Group and Study 2.

<table>
<thead>
<tr>
<th>CTI Scales</th>
<th>Intervention Group</th>
<th>Control Group</th>
<th>Study 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>Global Constructive Thinking</td>
<td>109.12</td>
<td>5.35</td>
<td>112.83</td>
</tr>
<tr>
<td>Emotional Coping</td>
<td>94.62</td>
<td>7.26</td>
<td>96.33</td>
</tr>
<tr>
<td>Behavioural Coping</td>
<td>56.50</td>
<td>4.84</td>
<td>56.00</td>
</tr>
</tbody>
</table>


Comparing Teacher-Rated Pre-test and Post-test Results

The following table shows the comparison between the teacher-rated MLQ (5X) mean scores for the intervention and control group (see Table 16).
Table 16
Comparison of Mean Scores between School Staff in the Intervention and Control Groups.

<table>
<thead>
<tr>
<th>MLQ (5X)</th>
<th>Intervention Group</th>
<th>Control Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-test</td>
<td>Post-test</td>
</tr>
<tr>
<td>Transformational Total</td>
<td>60.35 10.10</td>
<td>61.33 9.76</td>
</tr>
<tr>
<td>Attributed Charisma</td>
<td>12.64 2.49</td>
<td>12.61 2.39</td>
</tr>
<tr>
<td>Idealized Influence</td>
<td>13.38 2.18</td>
<td>13.76 1.98</td>
</tr>
<tr>
<td>Inspirational Motivation</td>
<td>14.30 1.93</td>
<td>14.27 1.93</td>
</tr>
<tr>
<td>Intellectual Stimulation</td>
<td>10.32 2.80</td>
<td>10.57 2.63</td>
</tr>
<tr>
<td>Individualized Consideration</td>
<td>9.79 3.32</td>
<td>10.23 2.95</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>M</th>
<th>SD</th>
<th>M</th>
<th>SD</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transformational Total</td>
<td>60.35</td>
<td>10.10</td>
<td>61.33</td>
<td>9.76</td>
<td>58.09</td>
<td>14.09</td>
<td>58.20</td>
<td>13.58</td>
</tr>
<tr>
<td>Attributed Charisma</td>
<td>12.64</td>
<td>2.49</td>
<td>12.61</td>
<td>2.39</td>
<td>11.35</td>
<td>3.68</td>
<td>11.34</td>
<td>3.15</td>
</tr>
<tr>
<td>Idealized Influence</td>
<td>13.38</td>
<td>2.18</td>
<td>13.76</td>
<td>1.98</td>
<td>13.36</td>
<td>2.47</td>
<td>13.27</td>
<td>3.34</td>
</tr>
<tr>
<td>Inspirational Motivation</td>
<td>14.30</td>
<td>1.93</td>
<td>14.27</td>
<td>1.93</td>
<td>12.87</td>
<td>3.06</td>
<td>12.83</td>
<td>3.11</td>
</tr>
<tr>
<td>Intellectual Stimulation</td>
<td>10.32</td>
<td>2.80</td>
<td>10.57</td>
<td>2.63</td>
<td>9.42</td>
<td>3.48</td>
<td>9.65</td>
<td>3.16</td>
</tr>
<tr>
<td>Individualized Consideration</td>
<td>9.79</td>
<td>3.32</td>
<td>10.23</td>
<td>2.95</td>
<td>9.21</td>
<td>3.67</td>
<td>9.41</td>
<td>3.33</td>
</tr>
</tbody>
</table>

Note. Comparison of means between the Intervention Group N = 8, Control Group N = 6.

SPANOVA was used to compare means for the intervention and control groups on transformational leadership. A paired-samples t-test procedure was used to explore possible expected differences between the intervention and control groups on transformational leadership scores. Results show that the change from pre-test to post-test scores for the intervention group was significant, $t(240) = 2.13$, $p = .03$. SPANOVA was used again to compare means for the intervention and control groups on the five factors that make up transformational leadership. Although no significant differences were found, one finding approached significance for idealized influence - attributed $F(1,349) = 3.63$, $p = .057$ in favour of the intervention group.
The strength of the results for study three was considered to be relatively weak since it took two dependent sample t-tests to show a result, and it didn't come up with an ANOVA.

A paired-samples t-test procedure was used to explore possible expected differences between the intervention and control groups on the five transformational factors. Results showed that the intervention group had a significant change in favour of idealized influence (attributed), $t(240) = 3.33, p < .0001$ and individualized consideration, $t(240) = 2.81, p < .0001$. If there was a regression to the mean it is the control group that should have shown a greater increase because it started from a lower base, $M = 58$. There was no initial significant difference in staff ratings of school principals for the control group on the transformational scale, $t(107) = .140, p = .89$, or the five factors that make up transformational leadership.

Results indicated that there was a significant positive difference between the pre-test and post-test scores for the intervention group, as rated by the school staff using the MLQ (5X), supporting hypothesis one. The empirical evidence in study three providing tentative evidence that changing information-processing styles could influence changes in leadership style for the intervention group while the pre-test and post-test scores for the control group remained unchanged. Apart from examining the within pre-test and post-test scores for the intervention and control groups, there was no difference between the groups, therefore hypothesis two was rejected. The next section outlines the qualitative results derived from the interviews with school principals in the intervention group.

Qualitative results

Responses to the nine questions are outlined next. The cited quotes were representative of the responses received from school principals and were selected
subjectively. In Question 1 school principals were asked how their practice had changed over the ten-week period. The majority of school principals indicated that the coaching intervention programme increased their level of consciousness, made them more aware of how they think, and enabled them to be more reflective about their practice. As one principal indicated: “I will actually think through some strategies and approaches beforehand so it’s much more conscious” (Principal 8).

Some principals indicated that the programme made them more aware of their attitude when working through problems. “It caused me to stop, think, and assess from a more informed perspective about the way my initial reactions can impact upon the way a situation unfolds” (Principal 5). Another principal indicated that the programme made him aware of how he engages in information-processing and the need to achieve a positive outcome.

By working through a new situation each week, one principal indicated that “One of the things that probably changed most is becoming more and more reflective about practice” (Principal 3). The training of principals’ information-processing and constructive thinking enabled them to reflect on best practice and provided them with a set of techniques based on CEST to further develop their leadership effectiveness. This was highlighted in the following statement, “I guess I have always had a sense of working towards a positive outcome but I didn’t have a sense of technique, whereas now, I have a sense of techniques that do that” (Principal 6). An example of this technique is articulated in the following comment: “I am now aware of the idea of the initial mental response, and the secondary mental response and of weighing that up in my mind” (Principal 4).

Through practice principals became more aware of their automatic thinking, and to decide if it was constructive or destructive. One of the destructive construals
noted among principals was their use of the “tyranny of the should”. Some school principals accepted reality for what it was, while others held strong beliefs about the way the school should be managed and how staff should behave. By believing that things “should” or “must” be a certain way, rather than simply wishing or preferring them to be that way, could make the school principal frustrated because life experiences do not always conform to these beliefs (Edelman, 2002).

In Question 2 school principals were asked if they experienced difficulties with the implementation of the coaching intervention programme. Two principals had no difficulty understanding and implementing the programme. One principal took hold of the programme as a road map in the form of a metaphor or analogy and used it to reflect on situations (Principal 1). Some limitations of the coaching intervention programme, as experienced by the other six school principals, are covered in the discussion section of this study.

In Question 3 school principals were asked if the coaching intervention programme was relevant to other people working in the school setting. There was a strong consensus among school principals that the coaching intervention programme had relevance to everyone in education, including students. One of the strengths was that it helped people to see their own blind spots that they sometimes avoid. The program was also well received because of the way it was presented “it’s not confrontational or aggressive; it’s helpful so it’s a reflective programme in itself and that’s very helpful” (Principal 1).

In Question 4 school principals were asked to comment on the length of the coaching intervention programme and if lasting cognitive and behavioural change could be achieved. Although similar coaching interventions have been conducted in educational settings over a 10-week period (Green, Oades & Grant, 2006) and others
over three-to-four months (O’Mahony & Barnett, 2008), this question received a mixed response. Some school principals indicated that the duration of the coaching intervention programme was adequate, while others suggested that it was not long enough to bring about lasting cognitive and behavioural change. One principal suggested that it could go for another ten weeks on the condition that: “I need something different with a similar ink that would be helpful such as reading a book or whatever. It doesn’t have to be the type of conversation we had but I think I need to continually ask myself questions” (Principal 1).

In Question 5 school principals were asked if the number of focus items set each week was adequate. In reality principals only needed one or two focus items per week rather than ten items. For some school principals it may have been more useful to think of a challenging situation that has yet to unfold during the week and select one or two focus items that are likely to be relevant to that situation.

Apart from the email notification principals received each morning from their principal’s secretary, school principals were asked in Question 6 if the focus items could be reinforced in other ways. Apart from identifying possible media of delivering the focus items, such as an iPod, MSN etc., all eight principals agreed that their secretary was best placed to deliver the focus items. In addition to the email notification, three out of eight principals requested that a hard copy of the focus items be placed on their desk each morning. “My secretary would make a hard copy of the focus items and place it next to my daily programme. The hard copy was there because that piece of paper actually sits there, and an email doesn’t” (Principal 5).

Acknowledging that the coaching intervention programme was simple and brief one principal suggested that greater accountability was needed for task completion. “I wasn’t accountable enough for keeping those focus items and if I had
to do a little reflective journal of a couple of lines in between sessions I may have
*been a little bit better at it*” (Principal 7). Reaching consensus about the single best
way focus items could be reinforced was difficult as each principal had their own
preferred method of integrating the focus items. Responses to Question 7 are
integrated in the limitations section.

Responses to Question 8 highlighted some of the ways the coaching
intervention programme could be improved. These include: (a) applying the coaching
intervention programme across the whole school as everyone is likely to benefit from
the process, (b) provide a twenty-four hours reminder notice to ensure regularity of
meetings and minimal disruption to meeting times, and (c) simplify the theoretical
model as described in the coaching intervention workbook.

Question 9 was an open-ended question that asked if principals had other
comments about the coaching intervention programme. All eight principals were
appreciative of their involvement in the coaching intervention programme. They
indicated that they were pleased to have been involved and thought it was a useful
programme. One of the school principals in the intervention group indicated that
“*whoever operates the process needs to have a great deal of personal positiveness
and that in someone’s hands who was less positive, I think that it wouldn’t be such
an effective process.*” Furthermore, “*it’s not simply a matter of saying that a
background in psychology is necessary, it’s actually a little more than that. It needs
be the mindset of the coach who has to be very much oriented towards helping
people maintain their positive view of how things should work*” (Principal 2).

Some principals commented about the manner adopted by the researcher,
indicating that it was “*very good for the process.*” “*I think you have clearly, a
genuine interest in this but equally you’re manner of interaction is non-judgmental.*”
Another principal indicated that: “It has been fabulous, it was gentle and affirming at times. It was encouraging in certain ways rather than telling me what to do and that has been great” (Principal 8).

In summary, all eight school principals appreciated their involvement in the coaching intervention programme and the way it was implemented. The majority of the school principals thought that the coaching intervention programme was non-judgmental, and was delivered in a positive, affirming manner. It also highlighted for one principal the potential benefits of regular supervision. The overall results of the semi-structured interview responses are an important adjunct to the quantitative results.

The eight school principals who participated in the 10-week coaching intervention programme were rated higher by their staff on transformational leadership compared to the school principals in the control group. In addition to the significant differences found in the intervention group between the overall transformational leadership pre-test and post-test mean scores, individualized influence (attributed), a factor of transformational leadership was also found to have a significant difference between the pre-test and post-test mean scores. School leaders in the intervention group displayed higher qualities of individualized influence - attributed towards the end of the 10-week coaching intervention programme. The study also found a significant difference between the pre-test and post-test mean scores on individualized consideration, another factor that makes up transformational leadership. Individualized consideration places the emphasis on treating each associate as an individual, and not just an interchangeable part (Bass & Avolio, 1997). It may be that effective transformational leadership is better able to influence teachers’ behaviour and attitudes by inspiring them through individualized
consideration and by providing intellectual stimulation (Leithwood and Jantzi 1999). Bass (1985a) considered individualized consideration (i.e., the subtle but comprehensive awareness of the follower’s situation) and intellectual stimulation (i.e., delicately targeted coaching and guidance to arouse intrinsic motivation) to be at the highest level of leadership performance (Chemers, 2000).

Most effective programmes in the area of leadership support reflective practice and provide opportunities to work, discuss, and solve problems with peers and coaches (Peterson, 2002). The coaching intervention programme helped school principals heighten their level of consciousness, and reflect on best practice by working on specific focus items each week and discussing the items within the framework of a specific situation with the researcher, who acted as an executive coach.

For educational leadership programmes to be effective they need to be: (a) conducted over long periods, (b) carefully planned, (c) job embedded, and (d) focused on student learning outcomes and how it is reached (Peterson, 2002). Although the coaching intervention programme was conducted over a relatively short period it produced a significant effect in elevating transformational leadership techniques among experienced school leaders. The effects among school principals in the intervention group may have been more pronounced if the coaching intervention programme was extended over a longer period and involved school principals with lower mean scores on the REI-L and CTI measures. During the interview phase some principals suggested that the ten-week period enabled a template to be internalized and probably needed to be conducted over a six-month period to bring about lasting change. The coaching intervention programme was however, carefully planned and focused strongly on the daily work of the school
principal (job embedded). Through the coaching intervention programme school
principals became more reflective and conscious of how they used their rational and
experiential systems. Depending on the situations that unfolded each week, the items
selected in the coaching intervention programme enabled the school principals to
work on corrective experiences, thereby enhancing constructive aspects of the
experiential system.

It has been suggested that leadership programmes need to deeply engage
leaders in thinking, reflecting, analysis, and practice with a strong component of
coaching and feedback (Peterson, 2002). The ten-week coaching intervention
programme provided school principals in the intervention group an opportunity to
engage in solving difficult school-related problems and develop their constructive
thinking.

Outstanding leaders tend to be superior problem-solvers because they have
developed the ability to reflect before making decisions (Rich & Jackson, 2005).
Working directly with the school principal to develop their rational system with its
focus on logic and analytical reasoning and the experiential system with its focus on
creativity and interpersonal relationships (Norris & Epstein, 2006), resulted in
elevating transformational leadership techniques of school principals in the
intervention group.

Coaching as a profession is steadily moving towards a more scientifically
grounded approach (Biswas-Diener & Dean, 2007) with the need for coaches to use
results of studies that are replicable and generalizable. With study three providing
tentative evidence that changing information-processing styles could influence
changes in leadership style, these results could be of assistance to the coaching
profession. The future of coaching is likely to integrate positive psychology as the
answer to the profession’s call for increased scientific backing in the form of empirically validated interventions and assessments (Biswas-Diener & Dean, 2007). The potential contribution of CEST to coaching is not that dissimilar to the contribution made by positive psychology. For example, behavioural coping with its subscales of action orientation, positive thinking and conscientiousness all appear to complement positive psychology. Both positive psychology and CEST present powerful techniques for transforming people’s lives, and inspiring them to live out their full potential.

Limitations

Experimenter bias and Hawthorne effects were considered two possible limitations; however, this is unlikely since the school staff did not interact with the school principal in either the intervention or control groups. When making inferences from the qualitative data caution needs to be exercised since the data, by any decent epistemological standard, was not as strong because of sample size, and potential bias. With the coaching intervention program being delivered by the researcher who was also an experienced counselling psychologist may have biased the results although the researcher was responsible to the NSW Psychologists Registration Board and the University of Western Sydney Human Research Ethics to remain objective, consistent and ethical during its delivery.

It could be also argued that the school principals who participated in the intervention group were self-selecting and this may have biased the results. The eight experienced school principals in the intervention group had lower mean scores on information-processing and transformational leadership compared to the large sample of school principals in study one and two, and could be self selecting as being in greater need of assistance. These potential limitations may be addressed by
replicating this study using a larger sample of school principals and in other educational settings.

Responses to Questions 7 suggest that six out of the eight school principals found it challenging applying the programme because of time constraints and the pressure of the job. The reasons why some school principals found it difficult to apply are: (a) some selected items did not relate well to the situation on the day they were allocated, (b) selecting items each week and being reminded via email was sometimes rushed, (d) coming up with a different initial response was difficult, (e) too many items were selected each week, and (f) it was not extended over a longer period so that it could be applied to major school projects. These limitations are not insurmountable and could be integrated in future coaching intervention programmes.

Summary and Conclusions

Study three provided tentative evidence that changing information-processing styles could bring about changes in transformational leadership. The implementation of the ten-week coaching intervention programme appears to have assisted school principals in the intervention group to make changes to their thinking and enhanced their transformational leadership techniques. The results of study three extend the previous two studies by confirming that by developing rational thinking and constructive aspects of the experiential system among school principals it is possible to increase transformational leadership techniques.

Although there is some evidence to suggest that when school principals display transformational leadership they are likely to influence job satisfaction, and organizational commitment (Koh, 1990), does this also point towards a connection with student learning outcomes? The next study examines the relationship between information-processing, teachers’ job satisfaction, and student learning outcomes.
CHAPTER 6: STUDY 4 – PREDICTING SCHOOL OUTCOMES

Studies one and two showed a strong positive connection between the rational system and transformational leadership, and the constructive elements of the experiential system with transformational leadership. Study three applied and tested the findings of the previous two studies in the field using an intervention study. Results provided tentative evidence that changing information-processing styles could bring about changes in transformational leadership. Having found a tentative causal relationship between information-processing and transformational leadership, the next step was to establish if the rational and experiential systems (having predicted transformational leadership) predict teachers’ job satisfaction and student learning outcomes. In this study absenteeism and turnover were used as proxy measures of job satisfaction because research shows a consistent connection between these and job satisfaction (Scott & Taylor, 1985).

Information-processing, Leadership Styles and Student Learning Outcomes

Even though the effectiveness of a school can be determined by such measures as student learning outcomes (Abbott & Caracheo, 1988), researchers have struggled to demonstrate direct empirical links from student learning outcomes to schools’ organizational climate. The link between school leadership and student learning outcomes also appears to be mediated by teachers. Teachers’ perception of how they view their work and how they teach appears to affect student learning (Lee, Dedrick, & Smith, 1991).

School principals, as a group, can make a difference in the lives of young people and achieving outstanding student learning outcomes (Dinham, 2005; Hallinger & Heck, 1996; Saulwick & Muller, 2004). Successful school leadership is
considered second only to classroom instruction among all school-related factors that contribute to what students’ learn at school. The total (direct and indirect) effects of leadership on student learning accounts for about one quarter of total school effects (Hallinger & Heck, 1996; Leithwood & Jantzi, 2000; Leithwood et al., 2004).

Research examining the relationship between the school principals’ leadership style and school effectiveness found that the most effective form of principal leadership focused on key internal school processes and student learning outcomes (Hallinger & Heck, 1996). These internal school processes ranged from best practices of teachers to school policies and norms (e.g., academic expectations, school mission, student opportunity to learn, instructional organization, academic learning time). Given that studies based on mediated-effects models often uncover statistically significant indirect effects of principals’ leadership on student learning outcomes, what is of importance is to understand the routes principals could follow to improve school outcomes (Hallinger & Heck, 1996). To better understand how school principals can enhance school outcomes research designs need to take a more sophisticated view of the chain of variables linking leadership practices to student learning outcomes (Cotton & Hart, 2002, 2003; Griffin, Hart, & Wilson-Evered, 2000; Leithwood et al., 2004). The purpose of this study is to determine if the rational system and the constructive elements of the experiential system used by school principals could predict teachers’ job satisfaction and student learning outcomes.

The empirical literature generally supports the belief that school principals exercise a measurable, though largely indirect, effect on student learning outcomes (Leithwood & Day, 2007). Even though principals have been found to account for between 2% to 8% of the variance in test scores (Ogawa & Hart, 1985), it is
statistically significant and supports the general belief among educators that principals contribute to school effectiveness and improvement (Hallinger & Heck, 1998).

There is a small, but growing, body of evidence that principals, acting as transformational leaders, play a key role in successful schools (Koh, 1990; Mulford, 2003a, 2003b; Silins & Murray-Harvey, 1999). Results have demonstrated that transformational practices have strong significant effects on organizational conditions that moderate the effects on student engagement (Leithwood & Jantzi, 2000).

During the early 1980s the question being asked was "Do principals make a difference"? By the mid-1990s research had extended its enquiry to examining the paths principals could use to improve school outcomes. Research was able to identify the means by which principals’ leadership influences students’ learning outcomes (Hallinger & Heck, 1998). More recently the longitudinal leadership for organizational learning and student outcomes (LOLSO) project demonstrated that the leadership that makes a difference is both position-based (principal) and distributive (administrative team and teachers) and that both are indirectly connected to student learning outcomes. More specifically, the LOLSO findings suggest that school leadership both directly and indirectly, through teacher satisfaction, classroom performance and leadership is linked to improved student learning outcomes (Mulford, 2003a). Factors that made up transformational leadership in school principals found through the LOLSO project were sequential, with individual support and culture preceding structure, vision, goals and performance expectations, followed by intellectual stimulation (Mulford, 2003a).
The LOLSO project provides strong evidence that teachers’ job satisfaction, classroom performance and the principals’ leadership style influences student learning outcomes, teacher recruitment and retention (Mulford, 2003b). The next section briefly examines absenteeism and turnover as predictors of job satisfaction.

**Job Satisfaction, Absenteeism and Turnover**

Past research examining the relationship between job satisfaction and absenteeism has yielded inconsistent results because of sampling errors, scale inadequacies, and the use of different measures of job satisfaction and absenteeism (Scott & Taylor, 1985). Furthermore, early research focused on identifying single order factors attributing to absenteeism, such as, adjustment to work (Evans & Palmer, 1997) rather than examining other contributory factors such as leadership style. Occupational health specialists have recognised that numerous factors influence absenteeism and job satisfaction, with supervision being the single most influential factor (Sargent, 1989).

Results of a meta-analysis found a stronger relationship between job satisfaction and absenteeism than previous research had suggested. More specifically, results showed that the strongest association was between absence frequency and overall satisfaction Scott and Taylor (1985). Results of a longitudinal study found that 25% of the variation in productivity and 12% of the variation in profitability between companies was associated with employee satisfaction. Employees’ satisfaction with their work and positive view of the organization, combined with relatively extensive and sophisticated people management practices, appear to be important predictors of future productivity (West & Patterson, 1999).

Employees who experience low job satisfaction and are dissatisfied with their associates or supervisors can become prime candidates for turnover. Absenteeism
and turnover are often referred to as withdrawal behaviour because they reflect the employee withdrawing from a noxious employment condition, either temporarily (absenteeism) or permanently (turnover) (Muchinsky, 2006). Although the relationship between job satisfaction, absenteeism and turnover appears to be mediated by several factors, such as the work environment, positive mood (Judge & Ilies, 2004) and personality (Judge, Heller & Mount, 2002; Wittwer & Wilson-Evered 2006), it remains an important relationship.

Teacher Job Satisfaction and Student Learning Outcomes

Within the educational context, teacher job satisfaction is important in predicting classroom performance and teacher leadership, which could in turn enhance student learning outcomes (Mulford, 2003b). In addition to practicing transformational leadership it has been suggested that school principals could benefit from displaying interpersonal skills that are associated with individual concern (Barnett & McCormick, 2004). Given that the experiential system is emotionally based, and associated with the development of interpersonal relationships (Epstein et al., 2006) it may be an important causal variable linking transformational leadership with teachers’ job satisfaction and student learning outcomes.

Student learning outcomes have been found to be a critical component of teacher satisfaction, a finding that draws implications on teachers’ competence and efficiency (Dinham, 1995). The importance of student learning outcomes to teachers’ job satisfaction were found in another study that indicated that satisfaction in meeting students’ outcome needs explained 28% of the variance in teachers’ job satisfaction (Heller, Rex, & Cline, 1992).

Positive relationships were also found between teacher satisfaction and indicators of student quality (reading and math skills, discipline problems, and
Principals who demonstrate interpersonal skills, an outcome associated with the experiential system (Epstein et al., 2006), and transformational behaviours, such as: (a) addressing individual concern (Barnett & McCormick, 2004) of teachers, (b) providing intellectual stimulation and challenges, (c) raising teachers expectations, and (d) investing in extra efforts are assumed to encourage teachers to view their occupation as more rewarding and central to their lives (Bogler, 2001) which, in turn, is assumed to influence student learning outcomes.

It seems that positive student learning outcomes are likely to occur when teachers are satisfied with their jobs and where the school principal is displaying individual consideration, and intellectual stimulation. The following hypotheses were examined:

Hypothesis 1: There will be a positive association between the transformational leadership and teachers’ job satisfaction

Hypothesis 2: There will be a positive association between the transformational leadership and student learning outcomes

Hypothesis 3: There will be a positive association between the rational system and teachers’ job satisfaction

Hypothesis 4: There will be a positive association between constructive elements of the experiential system and teachers’ job satisfaction

Hypothesis 5: There will be a positive association between the rational system and student learning outcomes

Hypothesis 6: There will be a positive association between constructive elements of the experiential system and student learning outcomes
Method

Sample and Procedure

Questionnaires were sent out to one-hundred and eighty-three school principals who had responded to study one. A total of eighty-one (44%) questionnaires were returned. As more responses were needed an additional one-hundred and two follow-up questionnaires were sent out resulting in twenty-three (23%) additional returned questionnaires. Of the one-hundred and four questionnaires returned in total, twelve (11%) were from special schools, twenty (19%) were from elementary schools (primary schools) and seventy (70%) were from high schools.

The REI-L, MLQ (5X), and the CTI results derived from study one and two were matched with the one-hundred and four questionnaires. From the one-hundred and four questionnaires a total of eighty-eight responses were matched with the REI-L, MLQ (5X), and the CTI measures. The remaining sixteen questionnaires could not be matched since the information provided was incomplete. Of the eighty-eight school principals, 52% were male and 47% were female. Their mean age was 50.7 years (men, M = 50.6 years and women, M = 50.9 years). The average number of years as principal was nine years (range one to twenty-four years). A total of 75% indicated that they had engaged in a school restructuring programme over the last five years.

Measures

Staff absenteeism and turnover. A single-page questionnaire was developed for this study. The four questions that measured absenteeism and turnover among teaching staff were:
1. How many academic teaching staff did you have in your school during 2005 academic year?

2. What was the total number of working days taken as sick leave by your full-time academic teaching staff during the 2005 academic year?

3. What was the total number of full-time academic teaching staff who took sick leave?

What was the total number of full-time academic teaching staff who left your school during or at the end of the 2005 academic year?²

There are approximately one-hundred and ninety-five teaching days in one school year. The percentage of the total number of working days taken as sick days was calculated by dividing the number of sick days by one-hundred and ninety-five days. The percentage of full-time teaching staff who took sick leave was calculated by dividing the number of full-time teaching staff who took sick leave by the number of teaching staff in the school. The percentage of turnover was calculated by dividing the number of full-time staff who left the school by the total number of staff in the school.

Student Learning Outcomes

At the end of high school, students in New South Wales sit for the Higher School Certificate (HSC) examinations. More than sixty-six thousand students sit for

² Sick leave is leave employees can take when they are sick or unable to work (Nightingale & Moulatsiotis, 2004). It can be taken as important proof of illness; however, it can also be taken by people who want to avoid work because of job dissatisfaction. School principals were instructed not to record absences due to carers’ leave, parental leave, maternity leave, paternity leave, adoption leave, annual leave, staff development/in-service or long service leave.
the NSW HSC (Barry, 2005), and it is similar to the American SATs and United Kingdom A-Levels. Given that students in elementary and special schools do not sit for the HSC these schools were excluded from further analysis of student learning outcomes.

The New South Wales HSC rankings of six-hundred and forty-six schools were obtained from The Sydney Morning Herald during January 2006. The Sydney Morning Herald provides an analysis of the HSC honour role credits. The HSC honour role credits are allocated according to the number of students who scored ninety or above in at least one subject, divided by the number of students in that school. Of the eighty-eight schools in the sample, a total of forty-four schools had students who scored ninety or above in at least one subject area and appeared in the 2005 NSW HSC honour role credit list. The percentage of credits received by each school was used to examine the relationship between information-processing and student learning outcomes.

Results

The eighty-eight schools in the sample had on average forty-nine staff (M = 49.17, SD = 46.81). The average number of working days taken as sick leave during 2005 was one-hundred and seventy-nine (M = 179.62, SD = 200.55). The average number of full-time academic teaching staff who took sick leave during 2005 was thirty-two (M = 32.56, SD = 32.14), and the average number of full-time teaching staff that left their school during the 2005 academic year was four (M = 4.39, SD = 4.96).
Relationship between Transformational Leadership and Teacher’s Job Satisfaction

No relationship was found between transformational leadership and the proxy measures of teachers’ job satisfaction (i.e., sick leave and turnover) since all correlations were weak or non-significant (all rs <.1). Even though no connection found between transformational leadership and teachers’ job satisfaction there was a connection found between laissez-faire (non-transactional factor) and teachers’ job satisfaction. More specifically, there were positive relationships found between the laissez-faire factor and the percentage of the total number of working days taken as sick days (r = .19, p < .05), the percentage of full-time academic staff who took sick leave (r = .20, p < .05), and the percentage of turnover (r = .19, p < .05). Given that the laissez-faire approach to leadership is about abdicating responsibility, it is understandable that action orientation, a subscale of behavioural coping, was found to have a significant negative relationship with the laissez-faire factor (r = -.40, p < .01). Laissez-faire was also found to have a significant negative relationship with transformational leadership (r = -.31, p < .01) and the three leadership outcome factors of extra effort (r = -.34, p < .01), effectiveness (r = -.42, p < .01), and satisfaction (r = -.24, p < .01). These results are consistent with the results found in Study 1. Results of study two showed that laissez-faire had a positive relationship with transactional leadership (r = .29, p < .01). More specifically, study two showed that laissez-faire had a strong positive relationship with management-by-exception (passive) (r = .49, p < .01). Regression analysis did not find any connection between transformational leadership and teachers’ job satisfaction.
Relationship between Transformational Leadership and Student Learning Outcomes

No relationship was found between transformational leadership and student learning outcomes; however, there was a significant positive relationship found between satisfaction (leadership outcome measure), and student learning outcomes. Satisfaction is one of three leadership outcomes measured by the MLQ (5X) (Bass & Avolio, 1997), and refers to leaders’ sense of self-satisfaction resulting from their leadership behaviour and activity (Sarros et al., 2002). Leader satisfaction was found to have a significant positive relationship with student learning outcomes ($r = .32$, $p < .05$). To test for the contribution of leader satisfaction in predicting student learning outcomes, a regression was calculated using the principals’ satisfaction as the criterion variable. The Adjusted R Square for leader satisfaction shows that 8% of the variance could be used to explain the student learning outcomes variable.

Relationship between Information-Processing and Teachers’ Job Satisfaction

The initial analysis examined the relationship between the information-processing systems, according to CEST, and teachers’ job satisfaction, as measured by staff absenteeism and staff turnover. There was a significant positive relationship found between the total rational score of the REI-L and the percentage of the total number of working days taken as sick days ($r = .26$, $p < .01$). There was also a significant positive relationship found between rational ability, a subscale of the total rational score and the percentage of the total number of working days taken as sick days ($r = .27$, $p < .01$). To test for the contribution of the rational ability in predicting the total number of working days taken as sick days, a regression was calculated using rational ability as the criterion variable. Regression analysis indicated that rational ability, that is, having confidence in their ability to think logically and
analytically, accounted for 3% of the variance in explaining the total number of working days taken as sick days.

With reference to the experiential system, there was a significant positive relationship between experiential ability, a subscale of the experiential system, and the percentage of the total number of working days taken as sick days ($r = .23, p < .05$). Given that there was a significant positive relationship found between experiential system and the percentage of the total number of working days taken as sick days it was decided to test the relationship between the constructive elements of the experiential system and teachers’ job satisfaction. Results indicate that emotional coping ($r = .22, p < .05$), and its subscales of self acceptance ($r = .27, p < .05$), absence of negative overgeneralizations ($r = .22, p < .05$), and action orientation ($r = .22, p < .05$), a subscale of behavioural coping, had significant positive relationships with the percentage of the total number of working days taken as sick days. There was also a significant negative relationship between action orientation ($r = -.22, p < .05$) and the percentage of turnover.

Relationship between Information-Processing and Student Learning Outcomes

The rational system was found to have a significant positive relationship with student learning outcomes. Rational ability ($r = .27, p < .05$), rational engagement ($r = .34, p < .05$), and the total rational score ($r = .35, p < .01$) had significant positive relationships with student learning outcomes. With reference to constructive thinking, behavioural coping ($r = .30, p < .05$), and its subscale of conscientiousness ($r = .30, p < .05$), were also found to have a significant positive relationship with student learning outcomes.
Regression Analysis

To test for the contribution of the rational system in predicting student learning outcomes, three regressions were calculated using student learning outcomes (percentage of credits received) as the criterion variable. The Adjusted R Squared for the rational total shows that 10% of the student learning outcomes criterion could be explained by this construct. Rational engagement accounted for 9% of student learning outcome variable (see Table 17).
Table 17

Summary of Regression Analysis for Variables Predicting Student Learning Outcomes

<table>
<thead>
<tr>
<th>Variable</th>
<th>R Square</th>
<th>$\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rational Total</td>
<td>.102</td>
<td>.349*</td>
</tr>
<tr>
<td>Ability</td>
<td>.062</td>
<td>.289 (Sig. .054)</td>
</tr>
<tr>
<td>Engagement</td>
<td>.092</td>
<td>.336*</td>
</tr>
</tbody>
</table>

N = 88. * p < .05. Men, n = 46; Women, n = 42.

Discussion

The tentative causal relationship found between information-processing and transformational leadership in study three could contribute not only to the development of high-quality preparation programmes for new and existing school leaders, but also prepare school principals to lead in ways that could improved student learning outcomes and cope with change (Busch, O’Brien & Spangler, 2005; Peterson, 2002).

Developing a better understanding how school leaders use their CEST information-processing systems appears to influence teachers’ job satisfaction, student learning outcomes and perhaps assist transformational leaders make a difference in the development of successful schools (Koh, 1990; Mulford, 2003a, 2003b; Silins & Murray-Harvey, 1999).
Although Hypotheses one and two were rejected since no relationships were found between transformational leadership and teachers’ job satisfaction or student learning outcomes, the leader satisfaction outcome measure was found to have a strong positive relationship with student learning outcomes. Being absent from work may not necessarily reflect the absence of transformational leadership. Good school leaders who, for example, display individual consideration, a subscale of transformational leadership, may encourage certain staff to have some time off work owing to ill health or stress in order to maintain optimal performance upon their return to work.

It may be recalled from Chapter three (Study one) that the laissez-faire leader avoids making decisions, abdicates responsibility, and elects not to use their authority (Antonakis et al., 2003; Eagly, Johannesen-Schmidt & van Engen, 2003). When applying the laissez-faire approach to leadership there are generally no transactions or agreements with followers. The decisions are often delayed; feedback, rewards, and involvement are absent; and no attempt is made to motivate others or to recognize and satisfy follower needs (Bass & Avolio, 1997). Given that the laissez-faire leader avoids making important decisions and delays responding to urgent questions it is not surprising that this study found a significant positive relationship between the laissez-faire factor and teachers’ job satisfaction as measured by absenteeism and turnover. By avoiding making important decisions and dealing with chronic problems the school may not only experience absenteeism among the teaching staff but also an increase in staff turnover. Combining high levels of absenteeism and turnover among the teaching staff may in turn have adverse effects on student learning outcomes.
The laissez-faire factor is considered the least effective form of leadership compared with transformational and transactional leadership (Bass, 1997), and in was found to be negatively correlated with the three leadership outcome factors of extra effort, effectiveness, and satisfaction (Sarros et al., 2002). Nevertheless results of study one and two did find a significant positive relationship between laissez-faire and transactional leadership. With study two showing a strong positive connection between laissez-faire and management-by-exception (passive) this may suggest that school leaders who avoid displaying leadership are doing so for the purpose of waiting passively for deviances, mistakes, and errors to occur before taking corrective action. In has been suggested that in some situations where large numbers of followers have to report directly to the leader it may be necessary to practice passive management-by-exception (Bass, 1998).

Satisfaction as a leadership outcome measure reflects how satisfied leaders are with their methods of leadership (Bass & Avolio, 1997). Results in this study suggest that school leaders who use methods of leadership that are satisfying and work with other school staff in satisfactory ways may have a positive effect on student learning outcomes. If seems plausible to think that if leaders are satisfied with their methods of leadership and work effectively with the school staff then this has the potential to translate into increased job satisfaction among staff and consequently elevate student learning outcomes.

Satisfaction as a leadership outcome measure was negatively correlated with the laissez-faire factor. Given that laissez-faire leaders avoid satisfying followers’ needs (Bass & Avolio, 1997) it seems that these leaders may struggle to work in satisfactory ways with their school staff. Perhaps this is why transformational
leadership is on average more highly correlated with the three outcome measures, including satisfaction, than with the laissez-faire factor (Bass & Avolio, 1997).

Hypothesis three was rejected since there was a positive relationship found between the rational system and the total number of working days taken by staff as sick days. If the school leaders’ modus operandi is to mainly operate according to logical inference, and remain relatively unemotional (Epstein, 1998a), especially during times of high teacher demand, this approach may impact on the number of sick days taken by staff.

With reference to the constructive aspects of the experiential system the results of this study suggest that if school leaders are coping emotionally by displaying self-acceptance and absence of negative overgeneralization this may serve to reduce the number of sick days taken by staff. Research has shown that if leaders are self accepting they are more likely to be accepting of others, and that good constructive thinkers tend to overgeneralize less when they experience negative events (Epstein, 1998a).

Although there are several benefits associated with using the constructive aspects of the experiential system, such as emotional coping, it does not appear to contribute towards teachers’ job satisfaction as measured through staff absenteeism. Although one of the school principals in study three considered emotional coping to be of little value to their daily work compared to the characteristics of the rational system and behavioural coping.

Given that the experiential system has both constructive and destructive properties, the results of this study suggest that action orientation, a constructive aspect of the experiential system and a subscale of behavioural coping appears to have a positive effect on staff turnover. The positive effect is likely to occur if school
leaders take effective action when problems arise and do not give up or are discouraged when they fail at a task (Epstein, 2001). The reverse appears to be true in reducing the number of sick days taken by staff. Hypothesis four was accepted since a positive relationship was found between the experiential system and constructive thinking with teachers’ job satisfaction.

These findings suggest that to reduce and better manage staff absenteeism and turnover school leaders may benefit from integrating both the rational system and constructive elements of the experiential system. Such leaders are likely to be well adjusted, academically capable and establish rewarding relationships with the teaching staff (Epstein, 1998a).

Hypotheses five and six were accepted since a positive relationship was found between the rational system and constructive elements of the experiential system with student learning outcomes. If school leaders display and reinforce confidence, reliance and enjoyment of thinking in an analytical and logical manner (rational ability and rational engagement) this approach appears to have a positive influence on student learning outcomes. Successfully completing the Higher School Certificate in NSW requires students to think analytically, logically and apply abstract reasoning. These are all qualities associated with the rational system. The relationship between the school principals’ rational system and student learning outcomes may be connected to the rational system, a system that is associated with language, logical inference, IQ tests and the ability to solve abstract problems (Epstein, 1998a). The use of the rational system at least in the school context appears to be a mixed blessing. On the one hand if school leaders place too much emphasis on the rational system it could have a negative influence teachers’ job satisfaction, and on the other hand it may have a positive influence on student learning outcomes.
With reference to constructive thinking of the experiential system behavioural coping and conscientiousness, subscales of behavioural coping, were found to have a significant positive relationship with student learning outcomes. If school leaders think in ways that facilitate action by being conscientious, optimistic, extraverted, enthusiastic, energetic and confident this approach may have a positive influence on student learning outcomes. In addition to thinking logically and analytically senior high school students may also benefit from being conscientious and optimistic. Having school leaders display optimism and conscientiousness may provide students with a positive role model during their final year of schooling leading to the successful completion of the Higher School Certificate.

Results in this study that link information-processing with teachers’ job satisfaction and student outcomes appear to be consistent with the research conducted by Ogawa and Hart (1985) who suggested that when the principal variable accounts for between 2 to 8% of the variance it is considered statistically significant. The results of study four showed that between 5 to 9% of the teachers’ job satisfaction and student learning outcomes variance could be explained by the rational system and constructive elements of the experiential system. Although the measures used in study four explained a small amount of variance, these results appear to be statistically significant and may have important implications for school leaders who work at elevating teachers’ job satisfaction and student learning outcomes (Leithwood et al., 2004).

Having established a positive connection between information-processing and transformational leadership in studies one and two, the result of study four appear to provide additional support to LOLSO project (Mulford, 2003b) by suggesting that how transformational leaders in schools use their rational system and constructive
elements of the experiential system could influence teachers’ job satisfaction and student learning outcomes. In addition, the results of study four support the general belief among educators that principals do contribute to school effectiveness and improvement (Hallinger & Heck, 1998).

Limitations

The REI-L and CTI data were collected only in the first two studies rather than collecting new information for the remaining three studies. The reason this is a limitation is that there isn’t perfect temporal stability, that is, test-retest reliability in these measures. Although this is a limitation, principals are busy people whose return rate may be poor if frequently asked to re-complete long questionnaires.

The other potential limitation is the sample size used to derive teachers’ job satisfaction and student learning outcomes. Future research could replicate this study using a larger sample of schools and students. Although there is research evidence that supports the association between job satisfaction and employee absenteeism (Scott & Taylor, 1985) it may also be useful to administer valid and reliable measures of job satisfaction to teaching staff. The result would not only have the potential to confirm the results of the present study but also determine if mediating variables exist between transformational leadership and student learning outcomes.

Summary and Conclusions

The results of study four suggest that how school leaders use their information-processing systems, according to CEST, may have an influence on teachers’ job satisfaction and student learning outcomes. In response to Hallinger and Heck (1996) the possible route school principals could use to improve school
outcomes may have been partly found; however, relying too heavily on the rational system may result in staff absenteeism and turnover (Albrecht, 2005).

In addition to elevating teachers’ job satisfaction and student learning the school principal also strives to maintain a balance between personal needs and professional responsibilities. Time constraints, the scarcity and constraints on resources, and the need to address poor teacher performance can pose challenges for most educational leaders (Caldwell et al., 2002; Duignan, 2006). Because of legal threats and industrial action some school principals may find it difficult to improve the performance of underperforming teachers, and it is often the principal who has to deal directly with these tensions (Duignan, 2006). If the school principal is better able to understand their information-processing systems, according to CEST, this may influence the way they manage conflict, keep the personal needs and professional responsibilities in equilibrium, and consequently improve their transformational leadership techniques.

Having found a weak relationship between the CEST information-processing systems, including laissez-faire, with both teachers’ job satisfaction and student learning outcomes, it is also important to examine how the CEST information-processing systems could influence school leaders’ selection of appropriate conflict-handling style to manage conflict in the school context, and this is what the next study is about. Another important aspect of leadership is to examine how leaders manage conflict in the workplace. More specifically, study five examines whether the CEST information-processing systems are connected to conflict-handling styles.
CHAPTER 7: STUDY 5 – INFORMATION-PROCESSING AND CONFLICT - HANDLING STYLES

The previous chapter examined the relationship between information-processing and both teachers’ job satisfaction and student learning outcomes. The results indicated that the way school principals engage in information-processing and constructive thinking may have a positive influence on teachers’ job satisfaction and student learning outcomes. The last four studies have been able to close the loop between information-processing, leadership style, and selected educational outcomes. These studies ask the question about connection and cause between these variables and consequently have generated good answers to that question. Specifically, a relationship has been established between CEST and FRLT (Studies one & two), there is some evidence that this relationship is causal (Study three) and that CEST and FRLT may contribute to selected educational outcomes (Study four). Building on the previous four studies, study five examines the connection between CEST information-processing systems and conflict-handling styles in the workplace.

Another important aspect of leadership is to examine how leaders manage conflict in the workplace. More specifically, study five examines whether the CEST information-processing systems are connected to conflict-handling styles among a sample of undergraduate students.

The study of conflict management initially gained professional interest in the 1960s through the seminal research by Blake and Mouton (1964). Through their dual concern theory, Blake and Mouton suggested that people use two primary goals: the concern for production versus the concern for people, that is, the desire to maintain interpersonal relationships. By mapping the two goals on a “Managerial Grid,” they developed five discrete styles for resolving conflict: problem-solving (high concern
for production and people), forcing (high concern for production versus low concern for people), smoothing (high concern for people and low concern for production), withdrawing (low concern for both people and production), and compromising (medium concern for production and people) (Holt & DeVore, 2005).

Since the 1960s several conflict-resolution self-report instruments have been developed based on Blake and Mouton’s dual concern theory. One such instrument, and one used in this thesis is Rahim’s Organizational Conflict Inventory II, (ROCI-II) (Rahim, 1983). Even though the labels for each conflict style vary between instruments (see Table 18), similarities exist as the measures follow the same general principles of the “Managerial Grid” (people concerns versus production needs) (Holt & DeVore, 2005). For consistency, Rahim’s (1983) conflict-handling styles terminology will be used throughout the final study.
Table 18

Differences between labels used to describe each conflict-handling style.

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem-solving</td>
<td>Integrating</td>
</tr>
<tr>
<td>Compromising</td>
<td>Compromising</td>
</tr>
<tr>
<td>Forcing</td>
<td>Dominating</td>
</tr>
<tr>
<td>Smoothing</td>
<td>Obliging</td>
</tr>
<tr>
<td>Withdrawal</td>
<td>Avoiding</td>
</tr>
</tbody>
</table>

Rahim (1983) differentiated the five conflict-handling styles along two basic dimensions: concern for self and concern for others. Combining the two dimensions resulted in five styles of handling interpersonal conflict: integrating; compromising; dominating; obliging, and avoiding (Rahim & Magner, 1995). The characteristics of the five conflict-handling styles are outlined in Table 19.
<table>
<thead>
<tr>
<th>Conflict-handling style</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrating</td>
<td>Seen as the “ideal” conflict-handling style. Involves high concern for self as well as the other party. Aim is to promote collaboration between parties.</td>
</tr>
<tr>
<td>Compromising</td>
<td>Involves having a moderate concern for self as well as the other party. Associated with give-and-take or sharing to make a mutually acceptable decision.</td>
</tr>
<tr>
<td>Dominating</td>
<td>Involves having a high concern for self and low concern for the other party. Associated with a win-lose orientation.</td>
</tr>
<tr>
<td>Obliging</td>
<td>Involves having a low concern for self and high concern for the other party. The person attempts to play down the differences to satisfy the concerns of the other party.</td>
</tr>
<tr>
<td>Avoiding</td>
<td>Involves having a low concern for self as well as the other party. Involves withdrawal or sidestepping situations.</td>
</tr>
</tbody>
</table>
The ROCI-II instrument was designed to measure the five styles of handling interpersonal conflict (Rahim, 1983). The internal consistency reliabilities coefficients for each subscale, as measured by Cronbach’s Alpha, ranged from .72 to .76 and from .65 to .80 for managerial and collegiate samples (Rahim & Magner, 1995). With reference to the ROCI-II measure it was concluded that, “The scales can be used in basic research, teaching, and in the diagnosis of styles of handling interpersonal conflict among members of an organization” (Rahim, 1983, p.375).

Conflict, Gender and Educational Leadership

A series of highly influential experiments Sherif (1966) and his associates found that competitive activities between groups of boys with no prior contact resulted in intense hostilities (Nye, 1973). From these experiments Sherif developed the realistic group conflict theory which proposes that intergroup hostility is produced by the existence of conflicting goals, for example, competition over scarce resources that cause the rudiments of intergroup hostility. According to the realistic group conflict theory conflict is reduced by the existence of mutually desired superordinate goals that are attainable only through intergroup cooperation (Jackson, 1993). Within education conflict can also arise over limited resources and gender differences. Even with the presence of good will in education, the competing ideas for limited resources and their allocation can result in conflict between well-intentioned parties (Owens & Valesky, 2007; Sherif, 1976;).

Results of a longitudinal study examining the challenges faced by contemporary leaders in service organisations, such as education, suggest that the real challenge faced by educational leaders, especially school principals, are the tensions between and among school staff, especially ones based on philosophies, values, interests and preferences (Duignan, 2006).
Given that school principals are generally male, and their image appears stereotypically masculine, defensive, rational and focused this appears to run counter to the fact that half of principals’ time is involved in maternal duties such as nurturance, patience, and attention to emotion, qualities often stereotypically associated with females (Lightfoot, 1983).

Reports on the first-stage of the International Successful School Principal Project found that successful school principals avoided the command-and-control form of leadership but rather held a deep conception of the organizations as organic, living systems based on facilitative power and self management (Leithwood & Day, 2007). The dominating, command-and-control style of leadership is inadequate for motivating human needs, or coping with complex and diverse problems faced by schools (Lightfoot, 1983; McGregor, 1960). In the most compelling cases, school leaders have feminized their leadership style by nurturing relationships and affiliations. In a review of six good high school leaders, Lightfoot (1983) noted, “Good leaders redefine the classic male domain of high school principals” (p. 25).

Results of a meta-analysis examining gender and conflict management showed gender differences with the compromising conflict-handling style.

Individual differences can play an important role in understanding how people handle interpersonal conflict (Antonioni, 1998). Using a collegiate and managerial sample, Antonioni found a number of positive associations between the Big Five Personality factors and the five conflict-handling styles with peers as measured by the ROCI-II (Rahim, 1983). The main results indicated that extraversion, conscientiousness, openness, and agreeableness had a positive relationship with the integrating conflict-handling style (Antonioni, 1998).
Evidence was also found in the literature that supported the connection between transformational leadership and conflict-handling styles. For example, in a study examining the relationship between leadership style and choice of conflict management strategies among head nurses (N = 60), the results showed that transformational leadership was found to significantly affect the choice of conflict management strategy. More specifically, head nurses who perceived themselves as transformational leaders had a tendency to choose the integrating style as their preferred choice of strategy when resolving conflict (Hendel, Fish & Galon, 2005).

Given that a positive relationship has been found in the literature between transformational leadership and the five conflict-handling styles, the purpose of this study is to determine if the rational and experiential systems predict peoples’ conflict-handling styles, and to examine the relationship between the constructive and destructive aspects of the experiential system with the five conflict-handling styles.

Information-Processing and Conflict-Handling Styles

The integrating style is considered the most desirable conflict-handling style. People who display high scores on this scale indicate a tendency or a willingness to work with others to find an optimal solution to problems. People obtaining high scores on the compromising style tend to choose the middle ground between two competing positions while high scores on the dominating style indicate a tendency to override others’ feelings and opinions. High scores on the obliging style indicate a tendency to acquiesce to the wishes of others, and the avoiding style is associated with avoiding conflict or the potential for conflict (Antonioni, 1998).

Although Rahim and his colleagues conducted extensive research on the five styles of handling interpersonal conflict, no research has examined the connection...
between the CEST information-processing systems and the five conflict-handling styles. The next three sections shall discuss the expected connections between the CEST system and the five conflict-handling styles.

The rational system with its focus on logic and analytical reasoning appears to complement the integrating style by generating new solutions aimed at satisfying the concerns of both parties by enhancing collaboration. As with the integrating style, the rational system is likely to overlap with the compromising style since it is attuned to generating new solutions that satisfy the concerns of both parties. Examining the relationship between the rational system and compromising style poses a challenge as this style consists of a blend between mutual problem solving and yielding (Antonioni, 1998).

Given that the rational system is intentional and analytical, it appears to complement the dominating style by enabling the individual to focus on the outcome, and, through analysis, gather information about the other party. In the dominating style the individual desires to “get his/her own way” regardless of the outcome to the other person (Hammock, Richardson, Pilkington & Utley, 1990). Contrary to the integrating style, where information about needs and interest is shared openly, in the dominating style information is collected and at times used as a source of power. If the dominating party knows more information about the other party’s need and interests then it may place the other party at a disadvantage (Antionioni, 1998).

The rational system is not predicted to overlap with the obliging style. In the obliging style the individual displays a low concern for the self and has a tendency to give in to the demands and wishes of the other party (Hammock et al., 1990). Displaying low concern for the self during a conflict resolution conversation may expose the individual to experiencing anxiety and stress (Antionioni, 1998).
Individuals operating with high scores on the rational system may be less likely to experience these emotions given that the rational system has been found to be associated with low levels of anxiety, stress, and depression (Epstein, 1998a, 1998b).

Given that the avoiding style is associated with having a low concern for the self, the other party, and withdrawing from the conflict situation (Hammock et al., 1990) this style is not predicted to overlap with the rational system. By withdrawing from the conflict situation there appears to be little need to use logic and analysis (rational system). The following hypotheses were examined:

**Hypothesis 1(a):** The rational system will be positively correlated with the integrating, compromising, and dominating conflict-handling style.

**Hypothesis 1(b):** The rational system will be negatively correlated with the obliging and avoiding conflict-handling style.

**Experiential System and the Five Conflict-Handling Styles**

At times the experiential system has been found to be more efficient in solving problems than the rational system (Epstein et al., 1995). Furthermore, the experiential system has an important role in generating creativity, humour, empathy, emotionality, and interpersonal relationships (Norris & Epstein, 2006). The qualities of the experiential system appear to complement the integrating style by enhancing the collaboration process between parties.

The experiential system has been found to be associated with developing interpersonal and secure relationships (Epstein et al., 2006), and, as such it is likely to be associated with any style where concern for others is emphasised. Therefore, the experiential system is likely to be associated with the integrating, compromising and obliging conflict-handling style, but not the domination and avoiding conflict-handling style. The following hypotheses were examined:
Hypothesis 2(a): The experiential system will be positively correlated with the integrating, compromising, and obliging conflict-handling style.

Hypothesis 2(b): The rational system will be negatively correlated with the dominating and avoiding conflict-handling style.

Constructive Thinking and the Five Conflict-Handling Styles

Since conflict could threaten one’s self-esteem, several cognitive resources are needed to cope with the situation (De Dreu & Weingart, 2005). A good constructive thinker will have at their disposal a number of coping strategies to deal with threatening situations. These strategies include emotional and behavioural coping, and their respective subscales. According to Epstein (1998a) a good constructive thinker refrains from labelling people good or bad but rather attempts to work out how to use their skills most effectively. They aim to bolster the person’s self-esteem rather than threaten it by treating them with disrespect or embarrassing them in front of others. These are some of the reasons why constructive thinking appears to complement the integrating style of conflict management.

It is predicted that people who score highly on global constructive thinking, emotional coping, and behavioural coping are likely to use the compromising handling style. The compromising style may be reflective of people who are flexible thinkers who can adjust their behaviour to meet the requirements of different situations (global constructive thinking), have a high level of self-acceptance (emotional coping) and remain confident in order to reach a mutually acceptable resolution (behavioural coping) (Epstein, 1998a).

People who elect to use the dominating style are unlikely to be constructive thinkers. Since constructive thinkers tend to be accepting of others and are biased
toward interpreting events positively (Epstein & Meier, 1989) it is unlikely they will use the dominating style to find a solution to the conflict.

The obliging style is expected to overlap with constructive thinking and some elements of destructive thinking, as the individual needs to be a flexible thinker in order to take into consideration the needs of the other party involved in the conflict. Taking into consideration the needs of the other party is likely to take place when the individual is also accepting of others (behavioural coping) (Epstein, 1998b; Epstein et al., 1996). Having a high concern for the other party suggests that the individual may have a tendency to be liked by others and avoid unpleasant realities associated with conflict (naïve optimism) (Epstein, 2001). They may also engage in stereotypical thinking by holding the belief that everyone should be concerned for others during times of conflict. Stereotypical thinking is a destructive aspect of the experiential system, and a subscale of naïve optimism (Epstein, 1991).

The avoiding style is not expected to overlap with constructive thinking, although there may be overlap with elements of destructive thinking such as: personal superstitious thinking, categorical thinking, and naïve optimism. In personal superstitious thinking the individual withdraws from the conflict perhaps because they believe that if something good happens to them, it will be offset by something bad (Epstein, 2001). Not wanting to take the risk that something might go bad, the simplest solution might be to withdraw. Similar to personal superstitious thinking, the individual may attempt to avoid the unpleasant reality of conflict, and fail to take protective action (naïve optimism). The individual operating with an avoiding style may also be distrusting and intolerant of the other party (categorical thinking) (Epstein, 2001). The following hypotheses were examined:
Hypothesis 3(a): Constructive thinking will be positively correlated with the integrating, compromising, and obliging conflict-handling style.

Hypothesis 3(b): Constructive thinking will be negatively correlated with the dominating and avoiding conflict-handling style.

Method

Design

Using a correlational design, study five collected on-line survey data on CEST information-processing systems and the five conflict-handling styles among undergraduate students. The convenience sample of undergraduate students was used to allow for more rapid data collection.

Sample and Procedure

In June, 2007, five-hundred and eleven surveys were administered to undergraduate psychology students at the University of Western Sydney, Australia. At the completion of the survey participants received partial course credit for their participation. The survey consisted of a short demographic questionnaire, the Rational-Experiential Inventory-Long Form (REI-L), the Constructive Thinking Inventory (CTI) and Rahim Organizational Conflict Inventory (ROCI-II). The on-line survey was set up so that participants could only complete the survey once, and it did not allow participants to miss items so no data was missing. Only students with jobs were invited to complete the on-line study.

As outlined in Study 2, the CTI has two built-in lie scales: defensiveness and validity. These scales are used as cut-off points for determining the validity of CTI scores (Epstein, 2001). As recommended by the test manual (Epstein, 2001) scores of
1.5 standard deviations or more below the mean on the validity scale or 1.5 standard deviations or more above the mean on the defensiveness scale were considered to be invalid and removed from further analysis. Of the five-hundred and eleven CTI questionnaires, eighty-five were removed from further analysis because their scores fell outside the CTI lie scale range.

Participants

Four hundred and twenty six participants had valid CTI scores, 21% were males and 79% were female. Their mean age was 21.8 years (men \( M = 23.3 \) years, and women \( M = 21.4 \) years) with a range of seventeen years to fifty-seven years and with the majority aged eighteen or nineteen years (49%). Sixty-five percent had a casual job, 29% had part-time work, and 6% had full-time work.

Measures

Rational-Experiential Inventory-Long Form (REI-L) and Constructive Thinking Inventory (CTI).

Refer back to study one and two for additional details about the REI-L and CTI measures.

Rahim Organizational Conflict Inventory II, (ROCI-II)

The ROCI-II (Rahim, 1983) is a 28-item questionnaire to which participants respond using a 5-point Likert scale. The ROCI-II measures five conflict-handling styles discussed earlier in this chapter. There are five scales within the questionnaire that measure the five styles – the number of items making up each scale are noted in parenthesis: integrating (7); compromising (4); dominating (5); obliging (6);
avoiding (6). An example of an item from the five conflict-handling styles is presented in Table 20.
Table 20
Sample items from the five conflict-handling styles (Rahim, 1983).

<table>
<thead>
<tr>
<th>Conflict handling style</th>
<th>Sample item</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrating Style</td>
<td>“I collaborate with my colleague(s) to come up with decisions acceptable to us both.”</td>
</tr>
<tr>
<td>Compromising style</td>
<td>“I try to find a middle course to resolve the impasse.”</td>
</tr>
<tr>
<td>Dominating style</td>
<td>“I use my influence to get my ideas accepted.”</td>
</tr>
<tr>
<td>Obliging style</td>
<td>“I generally try to satisfy the needs of the client.”</td>
</tr>
<tr>
<td>Avoiding style</td>
<td>“I try to avoid unpleasant exchanges with the client.”</td>
</tr>
</tbody>
</table>

Results of previous confirmatory factor analysis provide evidence of both confirmatory and discriminant validities of the ROCI-II subscales that measure the five styles of handling interpersonal conflict, and general support for the invariance of their five-factor model across referent roles (i.e., superiors, subordinates, and peers) (Rahim & Magner, 1995). The ROCI-II questionnaire may be found in Appendix 4.
Results

Descriptive statistics for the REI-L and ROCI-II

Descriptive statistics and Cronbach’s Alpha results in this study for the Rahim Organizational Conflict Inventory II and the Rational-Experiential Inventory-Long Form (REI-L) are presented in Table 21 and Table 22. Per-item means were calculated for the ROCI-II scales so that the scales with different numbers of items could be compared (see Table 21). The reliabilities for the main ROCI-II factors ranged from .69 to .82 and for the REI-L they ranged from .77 to .87.

Table 21
Per-Item Means, Standard Deviations, and Cronbach’s Alpha Reliabilities for the ROCI-II

<table>
<thead>
<tr>
<th>ROCI-II scales</th>
<th>Males</th>
<th>Males SD</th>
<th>Females</th>
<th>Females SD</th>
<th>Total</th>
<th>Total SD</th>
<th>α</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrating style</td>
<td>3.98</td>
<td>.48</td>
<td>3.97</td>
<td>.47</td>
<td>3.98</td>
<td>.47</td>
<td>.80</td>
</tr>
<tr>
<td>Compromising style</td>
<td>3.81</td>
<td>.57</td>
<td>3.83</td>
<td>.53</td>
<td>3.83</td>
<td>.54</td>
<td>.69</td>
</tr>
<tr>
<td>Dominating style</td>
<td>3.48</td>
<td>.60</td>
<td>3.17</td>
<td>.70</td>
<td>3.23</td>
<td>.69</td>
<td>.78</td>
</tr>
<tr>
<td>Obliging style</td>
<td>3.42</td>
<td>.54</td>
<td>3.44</td>
<td>.53</td>
<td>3.44</td>
<td>.53</td>
<td>.77</td>
</tr>
<tr>
<td>Avoiding style</td>
<td>3.12</td>
<td>.77</td>
<td>3.36</td>
<td>.74</td>
<td>3.31</td>
<td>.75</td>
<td>.82</td>
</tr>
</tbody>
</table>
A 2(sex) X 5(conflict-handling styles) mixed ANOVA was used to test differences between gender and conflict-handling styles. Results indicated significant gender differences for dominating and avoiding conflict-handling styles. Males scored higher on the dominating style (M = 3.48, SD = .60), and females scored higher on the avoiding style (M = 3.36, SD = .74), F(1,424) = 17.77, p < .001.

Correlations between Information-Processing and Conflict-Handling Styles

To determine the relationship between information-processing systems and conflict-handling styles, Pearson’s correlations were computed between the REI-L and the ROCI-II. The results indicated that the rational system had the strongest positive correlation with the integrating conflict-handling style. The total rational score and rational ability had a significant positive correlation with the integrating, compromising and dominating styles. Rational engagement had a significant positive correlation with the integrating style. On the other hand, the rational system had a strong negative relationship with the avoiding style. There were no relationships found between the rational system and the obliging handling style (see Table 23).
The correlation with the rational total was significantly stronger for the integrating conflict-handling style than for the compromising conflict-handling style ($Z = 2.47$) and for the dominating conflict-handling style ($Z = 3.05$).
Table 23

*Pearson’s Product Moment* Correlation Coefficients between Information-Processing and Conflict-Handling Styles

<table>
<thead>
<tr>
<th>Information-Processing system</th>
<th>Integrating</th>
<th>Compromising</th>
<th>Dominating</th>
<th>Obliging</th>
<th>Avoiding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rational Total</td>
<td>.31**</td>
<td>.15**</td>
<td>.10*</td>
<td>-.05</td>
<td>-.24**</td>
</tr>
<tr>
<td>Rational Ability</td>
<td>.29**</td>
<td>.16**</td>
<td>.16**</td>
<td>-.04</td>
<td>-.25**</td>
</tr>
<tr>
<td>Rational Engagement</td>
<td>.25**</td>
<td>.09</td>
<td>.03</td>
<td>-.04</td>
<td>-.16**</td>
</tr>
</tbody>
</table>

Note. N = 426. Men, n = 89; Women, n = 337. * p < .05. ** p < .01.

Positive, but weak, significant correlations were also found between the experiential system and two conflict-handling styles. Experiential ability, a subscale of the experiential system, had a positive relationship with the integrating conflict-handling style (r = .10, p = .049). Similarly, experiential engagement, also a subscale of the experiential system, had a positive relationship with the obliging conflict-handling style (r = .12, p = .014).

Descriptive Statistics for the CTI.

The internal reliability coefficients for the main scales of the CTI derived from the current sample ranged from the low .60s to low .80s, with the exception of personal superstitious thinking (α = -.59), categorical thinking (α = .20), polarized thinking (α = -.18), over-optimism (α = -.36), and stereotypical thinking (α = .29).
These factors were excluded from further analysis. Descriptive statistics and Cronbach’s Alpha results for the constructive thinking inventory are presented in Table 24.
Table 24

*Mean, Standard Deviation, and Cronbach’s Alpha Reliabilities for the CTI*

Undergraduate Sample

<table>
<thead>
<tr>
<th>CTI scale/subscale</th>
<th>Males</th>
<th>Females</th>
<th>Total</th>
<th>α</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M   SD</td>
<td>M   SD</td>
<td>M   SD</td>
<td>α</td>
</tr>
<tr>
<td>Global Constructive Thinking</td>
<td>93.22 15.33</td>
<td>90.98 15.13</td>
<td>91.98</td>
<td>15.18 .89</td>
</tr>
<tr>
<td>Emotional Coping</td>
<td>77.62 16.05</td>
<td>74.08 16.25</td>
<td>74.82</td>
<td>16.25 .91</td>
</tr>
<tr>
<td>Self Acceptance</td>
<td>23.33 5.08</td>
<td>22.78 4.71</td>
<td>22.89</td>
<td>4.79 .77</td>
</tr>
<tr>
<td>Absence of Negative Overgeneralization</td>
<td>13.13 3.51</td>
<td>12.64 3.52</td>
<td>12.75</td>
<td>3.52 .78</td>
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<tr>
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<td>21.36 6.04</td>
<td>21.80</td>
<td>5.94 .83</td>
</tr>
<tr>
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<td>17.28 4.95</td>
<td>17.37</td>
<td>4.91 .84</td>
</tr>
<tr>
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<td>49.04 7.81</td>
<td>49.027</td>
<td>.76 .82</td>
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<tr>
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<td>14.82 2.79</td>
<td>14.73</td>
<td>2.71 .71</td>
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<tr>
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<td>23.56 4.90</td>
<td>23.61</td>
<td>4.96 .79</td>
</tr>
<tr>
<td>Conscientiousness</td>
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<td>14.41 2.58</td>
<td>14.38</td>
<td>2.54 .63</td>
</tr>
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<td>Personal Superstitious Thinking</td>
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<td>2.36 .59</td>
</tr>
<tr>
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</tr>
<tr>
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<tr>
<td>Distrust of Others</td>
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<td>16.21</td>
<td>3.46 .55</td>
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<td>35.01 9.05</td>
<td>34.19</td>
<td>9.44 .85</td>
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<td>5.09 .79</td>
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<td>18.83</td>
<td>5.16 .72</td>
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<td>49.59 5.63</td>
<td>49.90</td>
<td>5.85 .62</td>
</tr>
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<td>Over Optimism</td>
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<td>15.14 1.98</td>
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<td>Stereotypical Thinking</td>
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<td>2.16 .29</td>
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<td>3.73 .63</td>
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<td>34.44 3.05</td>
<td>34.60</td>
<td>3.15 .40</td>
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Correlations between Constructive Thinking and Conflict-Handling Styles

To examine the relationship between constructive thinking and conflict-handling styles, Pearson’s correlations were computed between the CTI and the ROCI-II. There were several significant positive correlations between the CTI and the ROCI-II (see Table 25). Global constructive thinking had a significant positive relationship with the integrating and compromising conflict-handling style and a significant negative relationship with the obliging and avoiding conflict-handling style. Emotional coping had a significant positive relationship with the integrating conflict-handling style and a negative relationship with the obliging and avoiding conflict-handling style. Behavioural coping had a significant positive relationship with both the integrating and compromising conflict-handling styles, and a significant negative relationship with the avoiding conflict-handling style. Esoteric thinking had a significant positive relationship with the obliging conflict-handling style. Naïve optimism had a significant positive relationship with the integrating, compromising and dominating conflict-handling style.

Significant correlations were also found between the CTI subscales and the ROCI-II. Under emotional coping, self acceptance and absence of negative overgeneralization had a significant positive relationship with the integrating conflict-handling style. Absence of dwelling had a significant negative relationship with the dominating conflict-handling style. Absence of negative overgeneralization, non-sensitivity and absence of dwelling all had significant negative relationships with the obliging and avoiding conflict-handling style.

Some subscales of behavioural coping: positive thinking, action orientation and conscientiousness, had significant positive relationships with the integrating
conflict-handling style. Positive thinking and conscientiousness also had significant positive relationships with the compromising conflict-handling style. The obliging handling style had a significant positive relationship with positive thinking and a significant negative relationship with action orientation. Action orientation was also found to have a significant negative relationship with the avoiding conflict-handling style.

Formal superstitious thinking had a significant positive relationship with the obliging conflict-handling style. Pollyanna-ish thinking had a strong positive relationship with both the integrating and compromising conflict-handling style (see Table 26).
Table 25

Descriptive Statistics, Reliabilities and Intercorrelations between Constructive Thinking and Conflict-Handling Styles

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
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<tr>
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<tr>
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<tr>
<td>3. Dominating</td>
<td>3.23</td>
<td>7.51</td>
<td>.08</td>
<td>.05</td>
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<td>4. Obliging</td>
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<td>4.81</td>
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<td>.32**</td>
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<td>5. Avoiding</td>
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<td>-.15**</td>
<td>.41**</td>
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<td>6. Global Constructive Thinking</td>
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<td>-.11*</td>
<td>-.19**</td>
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<td>7. Emotional Coping</td>
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<td>-.16**</td>
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<td>8. Behavioural Coping</td>
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<td>.17**</td>
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<td>-.02</td>
<td>-.13**</td>
<td>.74**</td>
<td>.51**</td>
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<tr>
<td>9. Esoteric Thinking</td>
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<td>.07</td>
<td>.07</td>
<td>.14*</td>
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<td>-.09</td>
<td>-.17**</td>
<td>.06</td>
<td></td>
<td></td>
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<tr>
<td>10. Naïve Optimism</td>
<td>49.04</td>
<td>9.44</td>
<td>.28**</td>
<td>.17**</td>
<td>.11**</td>
<td>.09</td>
<td>.03</td>
<td>.23**</td>
<td>.10**</td>
<td>.32**</td>
<td>.34**</td>
<td></td>
</tr>
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</table>

Note. The conflict-handling style and constructive thinking results were derived from on-line self-reported measures. Reliability coefficient estimates N = 426. Men, n = 89; Women, n = 337. * p < .05. ** p < .01.
Table 26

Descriptive Statistics, Reliabilities, and Intercorrelations between Constructive Thinking Subscales and Conflict-Handling Styles

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
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<td>-.15**</td>
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<td>-.03</td>
<td>.01</td>
<td>-.16**</td>
<td>-.23**</td>
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<tr>
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<td>-.01</td>
<td>-.12*</td>
<td>-.17**</td>
<td>-.14**</td>
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<tr>
<td>Positive Thinking</td>
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<td>.29**</td>
<td>.02</td>
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<td>-.01</td>
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<td>Action Orientation</td>
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<td>-.12*</td>
<td>-.19**</td>
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<tr>
<td>Conscientiousness</td>
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<td>.18**</td>
<td>-.02</td>
<td>-.05</td>
<td>-.04</td>
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<td></td>
<td></td>
</tr>
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<td>-.04</td>
<td>.08</td>
<td>-.01</td>
<td>-.08</td>
</tr>
<tr>
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<td>.08</td>
<td>.08</td>
<td>.09</td>
<td>.04</td>
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<td>.06</td>
<td>.12*</td>
<td>.07</td>
</tr>
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<td>Pollyanna-ish Thinking</td>
<td>.26**</td>
<td>.17**</td>
<td>.07</td>
<td>.06</td>
<td>.03</td>
</tr>
</tbody>
</table>

Note. 1 = Integrating, 2 = Compromising, 3 = Dominating, 4 = Obliging, 5 = Avoiding. Note. N = 426. Men, n = 89; Women, n = 337. * p < .05. ** p < .01
Regression Analysis

To test for the contribution of the rational system and global constructive thinking in predicting the integrating conflict-handling style, separate regressions were conducted because these examined the contribution of scales, many of which were subscales for other scales. Specifically, one regression included the total rational and experiential scores and the other regressions included the main scales and subscales of the CTI. Therefore, independent regressions were conducted to avoid the problem of multicollinearity.

The results of the regression analysis support the correlational results. Significant relationships were found between the rational system, global constructive thinking, including five of the constructive thinking subscales, and the integrating conflict-handling style. The Adjusted R Square for behavioural coping shows that 16% of the integrating conflict-handling style could be explained by this construct. The two subscales of behavioural coping, that is, positive thinking and conscientiousness accounted for 19% and 14% of the variance in explaining the integrating conflict-handling construct (see Table 27).
Table 27
Summary of Regression Analysis for Variables Predicting the Integrating Conflict-Handling Style.

<table>
<thead>
<tr>
<th>Variable</th>
<th>df</th>
<th>Adjusted R Square</th>
<th>β</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
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<td>.113</td>
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<td>.255</td>
<td>.01</td>
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<td>.407</td>
<td>.01</td>
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<td>.01</td>
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<td>.01</td>
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<td>.286</td>
<td>.01</td>
</tr>
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<td>Pollyainish-thinking</td>
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<td>.078</td>
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<td>.01</td>
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</table>

As with the integrating conflict-handling style separate regressions were conducted to test for the contribution of the rational system and constructive thinking in predicting the compromising conflict-handling-style. The regressions were separate because they examined the contribution of several scales, many of which were subscales for other CTI main scales, and avoided the problem of multicollinearity. Significant positive relationships were found between the rational system, global constructive thinking, behavioural coping, including the subscales of positive thinking and conscientiousness, naïve optimism, pollyainish-thinking and the compromising conflict-handling style. The Adjusted R Squared for positive thinking shows that 10% of the compromising conflict-handling style could be explained by this construct (see Table 28).
Table 28

Summary of Regression Analysis for Variables Predicting the Compromising Conflict-Handling Style Handling Style.

<table>
<thead>
<tr>
<th>Variable</th>
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<th>Adjusted R Square</th>
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<th>$p$</th>
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</thead>
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<td>.329</td>
<td>.01</td>
</tr>
<tr>
<td>Conscientiousness</td>
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<td>.060</td>
<td>.249</td>
<td>.01</td>
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<td>Naïve Optimism</td>
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<td>.037</td>
<td>.198</td>
<td>.01</td>
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Discussion

Study five is unique in that it was able to show a positive relationship between the CEST information-processing systems and conflict-handling styles with the existing literature supporting the connection between transformational leadership and conflict-handling styles. Specifically, the study by Hendel et al. (2005) provided support for the connection between transformational leadership and the integrating conflict-handling style. These findings provided a good rationale for considering how the CEST information-processing system, conflict-handling styles and transformational leadership could fit together.

In Figure six there are two dashed lines and one straight line. The dashed line represents the connections established in this thesis; the straight line represents a connection that has been established in the literature. In Figure 6 the line from
rational processing and constructive thinking to transformational leadership is one-way. The line is one-way because study three showed that the connection is causal, inasmuch as changing thinking can change leadership style. The other two lines are two-way because there is no research to show whether the connection that has been found is causal, although it is proposed that information-processing, including constructive thinking underlies both leadership and conflict-handling style and that leadership and conflict-handling styles influence each other. Figure 6 consists of three pieces of the leadership puzzle that this thesis, when combined with existing published studies, has put together.
The next section will discuss the connections between the CEST information-processing systems and the conflict-handling styles found in this study.

**Rational System and Conflict-Handling Styles**

Hypothesis one (a) was supported since the rational system was found to have a strong positive relationship with the integrating, compromising and dominating conflict-handling styles. The integrating conflict-handling style was found to have the strongest relationship with the rational system followed by compromising and dominant conflict-handling styles. Hypothesis one (b) was partially supported since the rational system was found to have a significant negative relationship with the avoiding conflict-handling style, however no relationship was found with the obliging conflict-handling style.

The rational system was found to have a positive relationship with the integrating and compromising conflict-handling style. By having confidence to thinking logically and analytically (rational ability), and having to rely on and enjoy thinking in an analytical, logical manner (rational engagement) appears to enhance collaboration by allowing people to seek out solutions and satisfy the concerns of
both parties. With the emphasis on the use of language and logical inference (Epstein, 1998a) the rational system was also found to be connected to the compromising conflict-handling style even though there is a moderate concern for the self and the other party during the conflict.

Finding a positive relationship between the rational system and the dominating conflict-handling style suggests that the rational system could assist the individual to “get his/her own way” regardless of the outcomes to the other person (Hammock et al., 1990). By using clever language and displaying confidence in their ability to think logically and analytically, it may also be possible to gather information about the other party (Epstein 1998a).

There was also a significant negative relationship found between the rational system and the avoiding conflict-handling style. Given that the avoiding conflict-handling style is about having a low concern for the self, the other party, and withdrawing from the conflict situation (Hammock et al., 1990) it seems that little would be made of the rational system, a system that is associated with thinking logically and analytically (Epstein, 1998b) to resolve the conflict.

No relationship was found between the rational system and the obliging conflict-handling style. The reason why no connection was found could be because the rational system and the obliging conflict-handling style are operating in opposite directions. Specifically, the rational system has been found to be associated with low anxiety, and stress (Epstein, 1998a, 1998b) (see Chapter one) whereas the obliging conflict-handling style has been associated with increased levels of anxiety and stress (Antionioni, 1998).
Experiential System and Conflict-Handling Styles

Hypothesis 2(a): The experiential system will be positively correlated with the integrating, compromising, and obliging conflict-handling style.

Hypothesis 2(b): The rational system will be negatively correlated with the dominating and avoiding conflict-handling style.

Hypothesis two (a) was partly supported since the experiential system was found to be connected with the integrating and obliging conflict-handling style but not with the compromising conflict-handling style. Hypothesis two (b) was rejected since no relationships were found between the experiential system and the dominating and avoiding conflict-handling styles. As with the unexpectedly weak results found in study one between the experiential system and transformational leadership it is likely that the extent people use their experiential system constructively may be an important predictor of conflict-handling styles.

Positive but weak correlations were found between aspects of the experiential system and the integrating conflict-handling style. Relying on intuitive impressions and feelings (experiential ability) appears to complement the integrating conflict-handling style by enhancing the collaborative process between parties in order to move towards a resolution that is acceptable to both parties.

Relying on intuition and feelings when making decisions (experiential engagement) appears to complement the obliging conflict-handling style. Since the experiential system focuses on affect and the acceptance of others (Epstein, 1991) it is likely to complement the obliging conflict-handling style which is also focused on the overall concern for others.
Constructive Thinking and Conflict-Handling Styles

Hypothesis three (a) was partly supported since constructive thinking had a positive relationship with the integrating and compromising conflict-handling styles, and a mixed relationship with the obliging conflict-handling style. Hypothesis three (b) was accepted since constructive thinking had a negative relationship with the dominating and avoiding conflict-handling styles.

Global constructive thinking appears to complement the integrating and compromising conflict-handling styles by enabling the individual to think in flexible, positive ways and adjust their behaviour (Epstein & Meier, 1989; Epstein, 2001) to find an optimal solution to the problem. Behavioural coping, and its subscales of positive thinking, action orientation and conscientiousness, were strongly connected to the integrating conflict-handling style. These results suggest that people who tend to promote the positive sides of a situation (positive thinking), take effective action when faced with a problem (action orientation), and engage in planning and careful thought (conscientiousness) (Epstein, 2001) are more likely to find an optimal solution that is acceptable to both parties (integrating conflict-handling style). Given that conscientiousness, a subscale of behavioural coping, was found to be strongly associated with the integrating conflict-handling style confirms an earlier finding by Antonioni (1998) that linked conscientiousness as one of the Big Five Personality factors, with the integrating conflict-handling style.

Emotional coping had a positive relationship with the integrating conflict-handling style. It appears that people with good emotional coping are more self-accepting, tend to view potentially stressful situations as challenges rather than as threats, and tend not to take things personally or worry excessively about failure (Epstein, 2001; Epstein & Meier, 1989) and as a result they may be more likely to
seek out an optimal solution to the problem. Self-acceptance and the absence of negative overgeneralization, subscales of emotional coping, also had positive relationships with the integrating conflict-handling style. It makes sense that people who have a favourable view of themselves, and do not overestimate the generality of unfavourable experiences (Epstein, 2001) are more likely to work with others to find an optimal solution.

Positive thinking and conscientiousness were also found to have a significant positive relationship with the compromising conflict-handling style. By emphasizing the positive sides of a situation (positive thinking), and engaging in planning and careful thought (conscientiousness) (Epstein, 2001) individuals are more likely to find the middle ground between competing parties that addresses some of the needs of both parties.

Although emotional coping and the three associated subscales of absence of negative overgeneralization, non-sensitivity, and absence of dwelling had a strong negative relationship with the obliging conflict-handling style it also had both a positive and negative relationship with behavioural coping. Specifically, positive thinking had a significant positive relationship with the obliging conflict-handling style, and action orientation was found to have a negative relationship. In reality people who select the obliging conflict-handling style may benefit from promoting the positive sides of a situation but avoid planning too carefully or worrying excessively about others’ expectations.

Emotional coping and its subscales of absence of negative overgeneralizations, non-sensitivity and absence of dwelling had a negative relationship with the avoiding conflict-handling style. These findings suggest that people are likely to avoid dealing with the conflict if they think unrealistically about
negative experiences, are sensitive to uncertainty and obsess over negative events (Epstein, 2001). Absence of dwelling, a subscale of emotional coping, also had a negative relationship with the dominating conflict-handling style. Behavioural coping and its subscale of action orientation also had negative relationship with the avoiding conflict-handling style (see Table 26). By not taking effective action and worrying excessively (Epstein, 2001) the individual is more likely to use the avoiding conflict-handling style to bypass conflict or the potential for conflict.

There were several unexpected connections between destructive thinking scales and the integrating, compromising and dominating conflict-handling style. Naïve optimism and its subscale of pollyanna-ish thinking had a positive relationship with the integrating handling-style. High-spirited people who are liked by others (naïve optimism), and hold the belief that everyone is basically good at heart (pollyanna-ish thinking) (Epstein, 2001) appear to collaborate better between parties to reach an acceptable solution. In addition, it appears that people who operate with high levels of naïve optimism and pollyanna-ish thinking are better able to compromise by sharing and possibly giving up something in order to reach a mutually-acceptable decision for both parties (compromising conflict-handling style). Naïve optimism also appears to assist people who resort to the dominating conflict-handling style. By avoiding unpleasant realities the individual may decide to use the dominating conflict-handling style to override others’ feelings and opinions.

Formal superstitious thinking, also being a destructive thinking scale, was found to have a positive relationship with the obliging conflict-handling style. Given that formal superstitious thinking is associated with a belief in conventional superstitions such as astrology and omens (Epstein, 2001) these people may be obliged to give in to the wishes of others.
Limitations

Need to discuss common method variance

A convenience sample of undergraduates was tested in order to allow for rapid data collection and to get a large enough participant number for powerful statistical analysis within a reasonable amount of time. The average age of the undergraduate sample was twenty-one years compared to fifty years for experienced school leaders used in study one and two. The age discrepancy between the undergraduate sample and experienced school principals could have influenced not only the results, but also inferences arising from the results and their generalisation to the workplace.

Undergraduate students may have present themselves in a favourable light (social desireability responding) because of the incentive to obtain partial course credits. Since one of the major causes of common method variance is obtaining measures from the same rater, this could be controlled by collecting data from different sources (Podsakoff et al, 2003) such as observer, peer, or supervisor ratings (Spector, 2006). Future research with experienced school principals using a multi-method approach is needed to establish the generalizability of these results.

Future studies could address the sample issue by replicating this study by using experienced school leaders in the educational context. Finding positive connections between the CEST information-processing systems and the five conflict-handling styles in the educational context may have important implications for educational leadership. For example, school principals may benefit from understanding how their thinking could influence the choice of conflict-handling styles during times of conflict. Given that a positive connection has been found between the CEST information-processing systems and school principals’ leadership
style in studies one, two and three, establishing a connection with conflict-handling styles may further enhance their transformational leadership techniques.

Summary and Conclusion

Study five found several connections between the CEST information-processing systems and the five conflict-handling styles. The rational system had significant positive relationship with the integrating, compromising and dominating conflict-handling style. The experiential system had significant positive relationships with the integrating, compromising and obliging conflict-handling style, and constructive thinking had a significant positive relationship with the integrating and obliging conflict-handling style. The rational system and constructive thinking had significant negative relationships with the avoiding conflict-handling style. In the next chapter the findings of the five studies will be discussed collectively, with a specific focus on the implications of the CEST information-processing systems and the conflict-handling styles for leadership.
CHAPTER 8: DISCUSSION

The results of the previous five studies have provided evidence of a positive relationship between the CEST information-processing systems and leadership styles. More specifically, how leaders use their rational system and the constructive aspects of the experiential system appears to: (a) enhance the development of transformational leadership techniques, (b) be related to teachers’ job satisfaction and students’ learning outcomes, and (c) associated with the choice of conflict-handling styles. The final chapter examines the theoretical implications of the major findings and links these to the revised theoretical model that has been sequentially developed throughout this thesis. Practical implications, limitations and future directions of this research are also discussed in relation to our current understanding of leadership and, in particular, educational leadership.

Summary of the Empirical Studies

The results of studies one and two showed that the rational system and constructive thinking aspects of the experiential system had a positive relationship with transformational leadership. These two initial studies provided strong empirical evidence linking information-processing systems with transformational leadership and, as a result, established a theoretical foundation that underpinned the remaining three studies. The results of studies one and two have recently been published in the Journal of Leadership Studies (Cerni, Curtis & Colmar, 2008) (see Appendix 6).

Having found preliminary evidence for a theoretical model based on the results of studies one and two, the purpose of study three was to determine if a causal relationship existed between information-processing and transformational leadership. Set up as a pre-test, post-test, control-group design, the results of a ten-week
coaching intervention programme provided tentative evidence that changing information-processing styles could bring about changes in leadership style as independently evaluated by their school staff.

Having established evidence of correlational (Studies one and two) and causal (Study three) relationships between information-processing and transformational leadership the next step was to determine if information-processing could influence teachers’ job satisfaction and students’ learning outcomes. The results of study four indicated that the rational system, constructive elements of the experiential system, and satisfaction, an outcome measure of leadership, had a positive relationship with student learning outcomes. These results, combined with the results of studies one, two and three, suggest that when school principals make use of the rational system, constructive aspects of the experiential system and experience satisfaction with their methods of leadership, these factors could place them in a good position to influence teachers’ job satisfaction and student learning outcomes.

The results of the first four studies, to a large extent, closed the loop between information-processing, leadership style, and selected outcomes. As such, study five focused on a new research direction by examining the connection between information-processing systems and conflict-handling styles, as there was an established connection in the literature between transformational leadership and conflict-handling styles. The results showed a positive relationship between information-processing and four of the five conflict-handling styles.
Theoretical Implications of Major Findings

Information-Processing and Transformational Leadership

The results of study one showed that the rational system had a strong positive relationship with transformational leadership and all its subscales. The characteristics of the transformational subscales also appear to be linked to the rational system. For example, idealized influence – attributed, inspirational motivation and intellectual stimulation appear to be connected to the rational system. Leaders who are respected by their associates for setting challenging goals (idealized influence – attributed), who encourage associates to develop awareness and understanding of mutually desired goals (inspirational motivation), and encourage associates to question their own values, beliefs and expectations (intellectual stimulation) (Bass & Avolio, 1997) appears to be connected to the rational system, a system that is analytical, deliberative, and effortful, operating primarily through language (Epstein, 1998c). As well as the rational system showing a strong relationship with transformational leadership in Study 1, the results also indicated a weak relationship between the experiential system and transformational leadership.

It was pointed out by S. Epstein (personal communication, August 13, 2008) that the rational system, being more strongly connected to transformational leadership than the experiential system, is consistent with my finding that the rational system is more strongly connected than the experiential system to a variety of measures of psychological and social adjustment.

According to CEST, conscious thought and behaviour are joint functions of the rational and experiential systems. The rational system learns from words, numbers, diagrams etc., whereas the experiential system learns from imaginary and real experiences, as well as through corrective experiences and training (Epstein,
Given that the experiential system relies on personal experience, the articulation and logical analysis of the rational system remains critical for optimal functioning (Epstein, 2003). A question for leadership is how the preconscious experiential system influences leaders’ behaviour and how it integrates with the conscious rational system. Although the experiential system is associated with a number of positive (constructive) attributes such as creativity and compassion, it can also be a source of difficulty when it engages in superstitious thinking, prejudice, and biasing the rational system (Epstein, 2003). The negative (destructive) attributes of the experiential system may, in part, explain its weak relationship with transformational leadership in Study 1.

Study two confirmed the strength of the relationship between the rational system and transformational leadership. Moreover, it demonstrated a strong positive relationship between the constructive aspects of the experiential system and transformational leadership. Global constructive thinking, emotional coping, behavioural coping, and their subscales were all positively correlated with transformational leadership.

The Atwater and Yammarino (1993), Dubinsky et al. (1995), Humphreys and Zettel (2002) studies only found a positive connection between behavioural coping and transformational leadership. The present research extended their work by: (a) examining the full aspects of the rational and experiential systems with the FRLT (Bass, 1985a), (b) making use of all CTI scales, including the two lie-scales, and (c) studying experienced school leaders. The results of studies one and two support Atwater and Yammarino’s (1993) Dubinsky et al. (1995) and Humphreys and Zettel’s (2002) findings, but also suggests that transformational leadership is
connected to the rational system, global constructive thinking, emotional and
behavioural coping, and their subscales.

With the exception of idealized influence - attributed, transformational
leadership focuses on the behaviour of leaders (Elliott, 2000). The results of study
two suggest that transformational leaders’ in an educational setting are likely to be
flexible thinkers who can adjust their behaviour to meet the needs of a different
situation (which corresponds with global constructive thinking), and view potentially
stressful situations as challenges rather than as threats (which corresponds with
emotional coping; Epstein, 2001). The connection between the subscales of
emotional coping and transformational leadership suggests that transformational
leaders’ who operate with high self-esteem and hold a generally favourable view of
themselves (self-acceptance), avoid overestimating the generality of unfavourable
experiences (absence of negative overgeneralization), are resilient and able to
tolerate uncertainty (nonsensitivity), and avoid obsessing over negative events
(absence of dwelling).

Transformational leaders working in an educational setting are also likely to
think in ways that facilitate effective action (behavioural coping). The connection
between transformational leadership and the subscales of behavioural coping suggest
that transformational leaders’ tend to look for the positive side of situations by
thinking in a way that makes unpleasant tasks minimally distressing (positive
thinking), take effective action when faced with problems (action orientation), and
engage in planning and careful thought (conscientiousness) (Epstein, 2001). Given
that the experiential system has been found to be associated with affect (Epstein et
al., 1996), it seems plausible to associate positive thinking, a subscale of behavioural
coping with positive emotions. The recently developed broaden-and-build theory
suggests that positive emotions can serve the purpose of broadening leaders’
momentary thought-action repertoires and help build enduring personal resources
(Fredrickson, 2001). For example, employees working under supervisors who are
high on transformational leadership experience more positive emotions throughout
the workday, including interactions with coworkers and customers (Bono, Foldes,
Vinson, & Muros, 2007). Positive psychology also has the potential to assist
effective leaders create successful organizations (Kertsting, 2003) because it has an
innate orientation towards developing success, strengths and other positive outcomes
of employees (Biswas-Diener & Dean, 2007). Given that positive psychology also
focuses on the strengths in leaders’ personalities, Bass (2002) suggested that the
study of leadership will return to focus on the personalities of leaders and that much
will be learned about highly transformational and transactional leaders in changing
and stressful environments. This appears to complement the connection found in
study two between positive thinking and transformational leadership.

S. Epstein (personal communication, August 13, 2008) found it of interest
that both the rational and the experiential systems contributed to transformational
leadership. Epstein and his colleagues found that most people’s initial reaction to
situations is often maladaptive and this is then corrected by them thinking more
rationally. This sequence of thoughts suggests that the experiential and rational
systems are operating in a supplementary manner, and are considered to be adaptive
systems (Epstein, 1998a) Examples where the rational and experiential systems were
found to be supplementary included measures of: (a) conscientiousness (Epstein et
al., 1996; Pacini & Epstein, 1999), (b) self-esteem, (c) extraversion, and (d)
openness, the last two being part of the “Big Five” personality traits (Pacini &
Epstein, 1999).
Epstein and his colleagues also found that there are some circumstances where the rational and experiential systems were in conflict with each other (Epstein et al., 1996; Pacini & Epstein, 1999). Relying too heavily on the rational system may have its limitations, for example, when people are asked to think about (rather than justify) the reasons for their choices, this instruction appears sufficient to shift their attention toward “rational” considerations and away from factors that are more predictive of ultimate satisfaction (Miller, 2006). Furthermore, it appears that by analysing the reasons for preferences too carefully could reduce the individual’s satisfaction with their choices (Wilson & Schooler, 1991; Dijksterhuis & Meurs, 2006; Zhong, Dijksterhuis & Galinsky, 2008). The heavy emphasis on the rational system was noted in Study 1; however, this was balanced out with the results of study two showing that the constructive elements of the experiential system were also connected with transformational leadership. These results suggest that both the rational and experiential systems work in parallel, influence each other, and make an equally important contribution to transformational leadership.

Origins of Leadership – Personality, Situational, or Behavioural

Although criticism has been levelled about the usefulness of leadership as a unidimensional personality trait (Dunette, 1976) most of the earlier trait studies were not guided by well developed theories such as CEST (Epstein et al., 1996; Pacini & Epstein, 1999) and the FRLT (Bass & Avolio, 1994, 1997). Relatively few trait studies examined how skills and personality traits interacted to determine leadership effectiveness (Yukl, 1994). In more recent times a growing interest has developed that examines the influence of personality within the leadership dyad (Bono & Judge, 2004). The results of studies one and two provide evidence of a connection between personality-based information processing styles and leadership.
In the literature review (see Chapter two) it was suggested that the internal cognitive processes (Leithwood et al., 1996) and internal drivers (Traversi, 2007) appear to form an important theoretical connection between personality-based information-processing styles and leadership. Study one showed a strong positive relationship between transformational leadership and the rational system. Study two showed that constructive elements of the experiential system were connected with transformational leadership, and because Study three’s results suggest that the connection between information-processing and transformational leadership is causal, this suggests that these processes may be the underlying internal drivers of leadership behaviour.

Study three suggests that people have the capacity to change and improve their leadership effectiveness by making changes to their information-processing systems, their unconscious biases and consequently can start to behave more objectively, and realistically (Epstein, 2003). Creating changes in leadership effectiveness was demonstrated in study three by enabling school leaders’ to develop, reflect and become more conscious of their information-processing systems.

Leadership has been, and continues to be, a complex process and although research has found some traits to be useful in explaining effective leadership including: (a) intelligence, (b) confidence, (c) charisma (d) determination, (e) sociability, and (f) integrity, however, these traits form only one dimension of a multi-dimensional process (Northouse, 2009). The personality-based information processing systems examined in this thesis appears to offer another useful dimension to explain effective leadership; however, it may not be considered a trait. Study three showed that changing information-processing systems influences leadership, which
suggests that the trait model is not ideal, since traits are meant to be relatively-stable characteristics over time with little scope for change.

From a broader context of leadership theories, the connection between CEST information-processing systems and transformational leadership could also be elucidated from the behavioural or situational perspectives. From the behavioural perspective; since the subscales of transformational leadership, with the exception of idealized influence (attributed), focus on the behaviour of leaders (Elliott, 2000) it may be that the information-processing styles (rational thinking and constructive elements of the experiential system) are driving behaviours associated with transformational leadership.

From a situational framework; information-processing (rational thinking and constructive elements of the experiential system) may be driving transformational leadership that is appropriate to the situation. As discussed in studies one and two results of previous research suggest that transformational leadership is appropriate for the educational context (Bolger, 2001; Koh, 1990; Leithwood, 1994; Leithwood et al., 1999; Leithwood et al., 2004; Leithwood and Jantzi, 2000; Stewart, 2006) and it potentially leads to a testable theoretical prediction that there may be some situations where transactional leadership may be considered more appropriate.

Therefore rational and constructive thinking may be related to the use of transformational leadership in this study because that leadership style was appropriate for the educational context. If rational and constructive thinking underpin the use of situationally-appropriate leadership then these should be connected to transactional leadership in situations where it may be considered an appropriate style.

In the previous studies that found constructive thinking was connected to transformational leadership was the situation appropriate to transformational
leadership? If so, these studies do not shed any light on the question of what would happen in contexts where transactional leadership may be better. For example, Dubinsky, Yammarino, Jolson and Spangler (1995) found the transactional leadership may be more effective in the sales context. The preference for the transactional approach may have been due to: (a) the nature of the selling, (b) because the sales management practices were designed around contingent reward motivational processes, and (c) the physical distance between sales leaders and sales personnel in their research sample (Dubinsky et al., 1995). Given that transformational leadership has been found in close leadership environments such as education (Koh, 1990; Leithwood, 1994), hospitals (Hendel et al., 2005; Wilson-Evered et al., 2001), and the military academy (Atwater & Yammarino, 1993) proximity to the leader, or the lack thereof, appears to be influenced by the context (Humphreys, 2002).

Information-Processing and Conflict-Handling Styles

Many school principals are politically wedged between the expectations of classroom teachers, parents, senior management, and members of the school community (Stewart, 2006). These contemporary tensions faced by educational leaders’ involve complex and often conflicting human relationships (Duignan, 2006) with the most challenging situations involving the management of conflict with or between staff (Scott, 2003). In addition to exercising transformational leadership techniques it may be helpful for the school principals to understand how their information-processing systems, according to CEST, can influence their choice of conflict-handling styles.

The results of study five showed that there was a strong positive relationship between the rational system and the dominating conflict-handling style. When
conflict arose in the past between people or groups, such as a teachers’ strike, the resolution process was usually conducted by people who could withstand the strains imposed by the conflict (Sherif, 1962). It suggested that people who were equipped to manage conflict were those who could take control of the situation, who could command followers and be resilient. Now there is evidence to suggest that the dominating, command-and-control style of leadership is inadequate for coping with complex and diverse problems faced by schools (Ciulla, 1998; Leightfoot, 1983); however, it still continues to operate in some organizations.

Acknowledging the limitations of applying the dominating conflict-handling style in schools, the results of study five indicated that the integrating and compromising conflict-handling style also had a positive relationship with the rational system, and could be applied to manage conflict situations (see Figure 7). Understanding the relationship between information-processing systems and conflict-handling styles has the potential to assist leaders better manage conflict. Figure 7 outlines the connection between the five conflict-handling styles and information-processing, including constructive thinking, on a two-dimensional scale.
Figure 7. Linking information-processing with conflict-handling styles. (Adopted from Thomas-Kilmann Conflict Mode Instrument, p.11, by K.W. Thomas and R.W. Kilmann, 1974, Tuxedo, NY).

The results suggest that the rational system has a positive connection with the dominating, integrating and compromising conflict-handling style. The experiential system was found to have a positive connection with the integrating, compromising and obliging conflict-handling style, while constructive thinking was connected with the integrating and obliging conflict-handling style. The avoiding conflict-handling style had a negative relationship with the rational system, global constructive thinking, emotional coping and behavioural coping. The rational system with its
emphasis on analysis, logic, and ability to change with the strength of argument and new evidence (Epstein, 1991) appears to be well adapted to the integrating, compromising, and dominant conflict-handling style. The experiential system, on the other hand, with its emphasis on rapid processing, affect and interpreting events holistically appears to be well suited to the integrating and obliging conflict-handling style. Additional connections between information-processing and conflict-handling styles were discussed in Chapter 7.

The results of study five suggest that both the rational and experiential systems are adaptive systems when it comes to selecting the most effective conflict-handling styles. In order to select the ideal conflict-handling style, that is, the integrating-conflict handling style, it appears that people need to be high on both rational processing, and experiential processing (see Figure 7). Being high on both rational and experiential processing appears to support the idea that the ideal state of development, according to CEST, involves high level of functioning in both systems, with the rational system being in touch with the experiential system, and leaders being able to weigh the relative advantages of each when making decisions (Epstein & Pacini, 1999). Given that constructive thinking was also found to be connected with the integrating conflict-handling style it suggests that people are using the constructive elements of the experiential system.

Figure 7 indicates that people who use of the dominating conflict-handling style appear to be engaged in high levels of rational processing and assertiveness, whereas people who select the obliging conflict-handling style appear to be operating with high levels of experiential processing and cooperativeness. People who operate with moderate levels of rational and experiential processing appear to be consistent with the compromising conflict-handling style, which is concerned with having a
moderate concern for self as well as the other party (Rahim & Magner, 1995). The
avoiding conflict-handling style appears to be associated with low levels or rational
and experiential processing. Furthermore, avoiding conflict or the potential for
conflict people are likely to make minimal use of global constructive thinking,
emotional coping or behavioural coping.

With studies one and two showing a positive relationship between the rational
system, and constructive thinking aspects of the experiential system with
transformational leadership the next step was to determine if the existing literature
supported a connection between transformational leadership and conflict-handling
styles. Research evidence that linked conflict-handling styles and transformational
leadership was outlined in Study 5.

Experience of conflict is not just a function of external conditions, but also of
conflict management styles that people use to deal with problems at work. A simple
difference of opinion between people may be taken personally and as a result can
turn task conflict into relationship conflict (Simons & Peterson, 2000). These social-
psychological dynamics interacting with organizational elements appear to escalate
the potential of conflict (Bisno, 1988).

Research has shown that those who use a more integrative conflict-handling
style experience lower levels of task conflict and relationship conflict, which reduces
stress. Stress management and conflict handling styles appears to be connected to
constructive thinking, as emotional and behavioural coping are connected to stress
management. In a study examining the relationship between self-produced and
externally produced stress results indicated that people create much of their own
stress, not only by how they construe events and cope with them but also because of
the part they play in instigating the stressors they experience (Epstein & Katz, 1992).
There is strong evidence to suggest that good constructive thinkers experience less stress than poor constructive thinkers because: (a) they behave in ways that produce fewer distressing events in their lives, and thereby creating a less stressful environment for themselves, (b) they interpret potentially stressful events in less stressful ways, and (c) they cope more effectively with situations once they have interpreted them as stressful (Epstein, 1998a). How people cope with stress appears to be an important factor that connects constructive thinking and conflict-handling styles.

Having established a positive relationship between the CEST information-processing systems and the five conflict-handling styles it was necessary to revise the CEST-transformational leadership model outlined at the end of Chapter 2. The revised CEST-transformational leadership model serves as a guide for school leaders’ who may arrive at a conscious, often explicit, realization about choices among decision processes.

The development of the revised CEST-transformational leadership model is timely, and in response to the suggestion that leadership research should attempt to build theoretical models that is relevant to the context (O’Keeffe, 2007). Figure 8 provides a proposed causal-pathway between information-processing and selected outcomes. Starting with information-processing, leaders initially become aware how the two parallel, bi-directional, interacting systems: the rational system and experiential system operate (Epstein, 1998b; Epstein, 2000). Within CEST it is assumed that everyday perception and behavior, is largely automated and mainly directed by the experiential system (Epstein & Meier, 1989). Therefore, to understand the operation of the experiential system and predict success in living, the constructive thinking inventory, a self-report measure of automatic constructive and
destructive thinking was developed. Figure 8 shows a one-way arrow from the experiential system to constructive thinking. From constructive thinking the leader needs to ensure that their constructive, rather than destructive thinking, is operating when it interacts with the rational system. Study two showed that global constructive thinking, emotional coping and behavioural coping had a positive connection with the rational system (Study 2). Behavioural coping and emotional coping abilities have been empirically linked with transformational leadership behaviours in study two and in the Atwater and Yammarino (1993) study, although these researchers found that emotional coping was negatively related to subordinate ratings of transactional and transformational leadership. In the Humphreys and Zettel’s (2002) study it has been suggested that behavioural coping might serve as a moderating variable between transformational leader self-perceptions and objective sales performance, however, this thesis suggest that behavioural coping is initially influenced by the combined operation of the experiential and rational systems (see Figure 8).

The combination of the rational system and constructive elements of the experiential system also appears to influence the choice of conflict-handling styles, transformational leadership, including leadership outcomes, teacher’s job satisfaction and student learning outcomes.

If this model is applicable to the educational context, then school principals are likely to enhance their transformational leadership techniques, leadership outcomes, and choice of conflict-handling styles. This, in turn, is likely to influence teachers’ job satisfaction and improved student learning outcomes. Figure 9 also incorporates transactional leadership and the laissez-faire factor since the best form of leadership consists of both transformational and transactional factors (Bass,
1985a). The laissez-faire factor in this thesis was found to have a significant negative relationship with rational thinking, constructive thinking, transformational leadership, satisfaction (leadership outcome measure), teachers’ job satisfaction and student learning outcomes (see Figure 9). With the laissez-faire factor, or the absence of leadership, there is little need for leaders to use the rational system, constructive thinking, exercise transformational leadership or be concerned about outcomes. These negative correlations are represented with a dashed line.
Figure 8. CEST-Transformational leadership model linking information-processing, leadership and selected outcome measures.
Figure 9. Relationship between laissez-faire leadership and the CEST-transformational leadership model.

Practical Implications of Major Findings

Information-Processing, Leadership and Student Learning Outcomes

This research has moved one step closer to understanding the operation of the experiential system and how it interacts with the conscious mind, that is, the rational system to influence transformational leadership techniques, leadership outcomes, selection of conflict-handling styles, teachers’ job satisfaction and student learning outcomes. There is a need, especially for those in leadership positions, to understand their own thinking processes. It requires leaders’ to review new information and decisions from not only the rational or logical perspective (rational system) but also from the emotional perspective (experiential system) (Lindsay, Halfacre & Welch, 2004). When leaders understand the operation of the rational and experiential system it may inspire them to start cultivating the higher reaches of both systems and operate them in a supplementary manner (Epstein, 1998a).
The results of study two showed a connection between the constructive elements of the experiential system and transformational leadership. School leaders may benefit from being aware how the rational system and experiential systems influence their thinking. By relying on the rational system leaders need to be aware that: (a) the rational system is experienced consciously and it tries to be internally consistent, (b) it learns directly from words, numbers, diagrams, (c) it works slowly and methodically, (d) it readily enables logical connections to be made between cause and effect, and (e) it can adapt to new information with oral communication (Epstein, 1998a).

The implications of study two also suggest that leaders need to use the constructive elements of the experiential system in order to be more reflective and behave more constructively in the workplace. For example, good constructive thinking leaders’ tend to let followers know where they stand since constructive thinking was found to be associated with having a high concern for self as well as the other party (integrating conflict-handling style). By using the rational system and constructive elements of the experiential system leaders are likely to maintain a problem-solving orientation, think in flexible ways, and pay attention to interpersonal relationships on the job (Epstein, 1998a).

Applying rational thinking and constructive elements of experiential processing to a set of school-related scenarios was adopted in Study 3, and one that is similar to the scenario framework used at the Harvard Business School (Parks, 2005). According to Epstein and Katz (1992) the reconstrual of events is only part of the solution, an equally important part is that school leaders also behave in ways that reflect the four interrelated components of transformational leadership, that is,
idealized influence – behaviour, inspirational motivation, intellectual stimulation, and individualized consideration.

Some of the reasons why the coaching intervention programme outlined in study three was successful and well received by the school principals was because: (a) it was based on a well-researched theory of personality (CEST), and (b) it was delivered by an experienced counselling psychologist. As reported in study three one of the school principals emphasised that the coaching intervention programme needed to be delivered by the right person who not only has a background in psychology but also had a positive mindset that focused on guiding school leaders to find a positive solution to school-related issues.

By having an experienced psychologist, with a background in teaching, deliver the coaching intervention programme (Study 3) to school principals coincided with the call from the American Psychological Association that the knowledge base of psychology should be extended to high-school education (Belar et al., 2003). The results of study three appear to have strengthened the connection between psychology and education and given that many coaches do not ground their practice in behavioural science (Green et al., 2006) reinforces the need to have coaching intervention programmes delivered by experienced coaches with a background in psychology.

Today, there is a strong interest internationally in leadership development and coaching (Wildy, Clarke & Slater, 2007) that aims to develop “Educational leaders who are capable and authentic; who can take action to bring about effective transformational change” (Duignan, 2006, p. 148). This means that leadership programmes “Need to be more just-in-time, just-for-me; more focused on learning by resolving real-world problems and dilemmas of daily practice as they arise; they
need to use peer support more directly and foster reflection on experience” (Scott, Coates, & Anderson, 2008, p. 102). The development and successful implementation of the coaching intervention programme in study three could assist the design of future school leadership programmes that focus on providing school principals with cognitive skills to improve their transformational leadership techniques.

A school principal’s day is one that involves endless small encounters during which time they need to sort out situations that are most significant and then determine how they are managed (Scott, 2003). Although the leaders’ capabilities take time to form, Duignan (2006) believes that: “All leaders can ‘re-form’ with personal reflection and critique, complemented by opportunities to engage with colleagues and mentors in deliberately constructed and creative learning experiences” (p. 155). The coaching intervention programme developed in study three provided an opportunity to engage with leaders and develop strong working relationships (de Nijs, 2008), relationships that were based on setting professional goals and achieving school-based results.

The traditional approach to school improvement has been to work in isolation; however, a growing number of schools are breaking down the isolation barrier by employing a school improvement coach (Kostin & Haeger, 2006). The eight experienced school principals that engaged in the coaching intervention programme (Study 3) not only broke the isolation barrier but allowed their leadership style to be analysed, calibrated and developed.

With coaching psychology emerging as an applied sub-discipline of psychology that draws upon and develops established psychological approaches (Green et al., 2006) there may be associated benefits, as demonstrated in Study 3, for schools to employ the services of an executive coach. By having a long-term
arrangement in place the executive coach may be in a position to dedicate time, technical expertise and provide a thoughtful response that addresses the needs of the school (Kostin & Haeger, 2006). In a detailed qualitative analysis of the most and relevant forms of principal training and development Scott (2003) found that mentoring and coaching were effective ways of changing practice.

Limitations and Future Directions

The findings of the five studies should be viewed in light of the limitations outlined earlier, as well as the opportunities that are presented by those limitations. The strength of the first four studies is that it used a sample of autonomous school principals. However, it is acknowledged that the results are derived only from educational leaders in NSW and ACT independent schools, and caution should be exercised when applying these results to other leadership settings.

The results of studies one, two and four showed several significant negative relationships between the laissez-faire factor and the rational system, transformational leadership, global constructive thinking, behavioural coping, and the three leadership outcome factors of extra effort, effectiveness, and satisfaction. These findings appear to be consistent with other literature that have demonstrated reasonably consistent negative relationships between the laissez-faire factor and several dependent variables, however this construct has received little examination or theoretical development in the literature (Hinkin & Schriesheim, 2008). Perhaps it may be just as important to study what leaders don’t do as it is to study what they do. For example, questions such as “What are the effects of non-responsive leader behaviour over time?”, and “How does non-responsive leader behaviour affect high performing subordinates? These are important empirical questions worthy of further investigation.
With the exception of Study 3, the remaining four studies were correlational designs. Although correlational research does not show directly whether information-processing causes changes in leadership style, teachers’ job satisfaction, student learning outcomes or the choice of conflict-handling style, the results of study three provided tentative evidence that it may be possible to coach experienced school principals to improve their transformational leadership techniques by creating changes to their information-processing systems. Even with this positive finding caution needs to be exercised when interpreting the results of study three since they were derived from a small group of school principals in NSW independent schools.

Given that the eight school principals that made up the intervention group in Study three were self-selected members of a specific school system, they may not be representative of school principals across the entire educational sector, and may have been motivated to achieve their goals (Green et al., 2006). Although this may have been a limitation, the fourteen school principals were randomly split between the intervention and control groups at the commencement of the coaching intervention programme. Since the theoretical model in this thesis posits that a causal relationship exists between information-processing and transformational leadership future research could investigate whether these results could be replicated using a larger sample of experienced school leaders and in other educational settings.

Having found tentative evidence in study three that changing information-processing influences transformational leadership suggests that information-processing (rational thinking and constructive elements of the experiential system) may be driving the choice of leadership approaches appropriate to the situation. Since constructive thinking has been found to be synonymous with adaptive functioning (Epstein, 1998c) and flexible thinkers can adjust their behaviour to meet
the needs of a different situation (Epstein, 2001), rational/constructive leaders could potentially adjust their behaviour to be more transactional in certain situations. Future research could determine if creating changes in the information-processing systems could influence leaders to display transactional leadership behaviour in situations where it might actually be preferable, such as sales (Dubinsky, Yammarino, Jolson & Spangler 1995). The current research does not resolve this issue of causation. Research on information-processing systems should address this issue of reciprocal causation through a more sophisticated design, and greater demographic knowledge of the leader/follower sample in various contextual settings that reflect transformational and transactional leadership. Research could also investigate the efficacies of the coaching intervention programme to determine whether coaching such as other approaches vs large-scale teaching or self-directed learning would be the best way to intervene in people’s information-processing.

Since study three was conducted over a ten-week period, the long-term effects of the intervention could not be determined. Given the time restrictions inherent in Ph.D. research it may be useful for future research to incorporate a later follow-up testing session (O’Keeffe, 2007).

Given that prior research has found an indirect effect between leadership and student learning outcomes (Leithwood & Day, 2007; Mulford, 2003b) the results of study four did find a weak direct connection between information processing and student learning outcomes. These results suggest that the way school leaders use their rational system and constructive elements of the experiential system may influence student learning outcomes. To further strengthen the connection between information-processing and student learning outcomes future research could examine if coaching school teachers rather than school principals to effectively use their
rational system and the constructive properties of constructive thinking could enhance student learning outcomes. The unexpected and inconsistent correlation between principals’ rational processing and the number of sick days taken by staff suggests that future research could incorporate more direct measures of satisfaction.

The results of study five indicated gender differences associated with the choice of conflict-handling styles. Male undergraduate students selected the dominating conflict-handling style more frequently compared to females who showed preference for the avoiding conflict-handling style. The results of a meta-analysis indicated that females were more inclined to use the compromising conflict-handling style in both individualistic and collectivistic cultures (Holt & DeVore, 2005); however, these findings were not replicated among the female undergraduate sample in Study 5. Future research could determine if gender differences exist between conflict-handling styles using a large sample of experienced school principals.

With reference to the REI-L measure used in study one it was during the completion of the thesis that Norris and Epstein (2006) developed a new measure of the experiential system: Rational Experiential Inventory-Experiential (REIe). Norris and Epstein were able to show that the experiential system was multi-dimensional, comprising of intuition, affectivity and imagination. Given that the new REIe scale has additional items compared to the number of experiential items found in the REI-L (see Study 1), this imbalance was thought to pose similar concerns that were identified in the original REI measure of not having completely parallel content (Pacini & Epstein, 1999). The new REIe scale has a total of thirty Experientiality items vs twelve Rationality items, almost the complete reversal of the Epstein et al. (1998a) original REI measure of nineteen Need for Cognition items vs. twelve Faith
in Intuition items. For this reason it was decided not to use the new REIe measure in this thesis. However, there is a potential of the new REIe for future educational leadership research.

Conclusion

This thesis has generated several significant findings with important implications for educational leadership. The results of studies one and two showed that school principals who rated themselves as transformational leaders obtained higher scores on the rational system and the constructive factors of the experiential system. High levels of rational thinking, global constructive thinking, emotional coping, and behavioural coping appear to be important antecedents to transformational leadership.

The results of study three further validated the theoretical model in this thesis by providing evidence of a tentative causal relationship between information-processing and transformational leadership. Study four showed some connections between information-processing, transformational leadership, and selected outcomes, and study five opened up a new research direction by establishing a positive connection between information-processing and conflict-handling styles.

Understanding of the internal cognitive processes that contribute to transformational leadership has the potential to affect the quality of life of both leaders and followers (Epstein, 1998c). Furthermore, by understanding the reciprocal influence between information-processing systems, including the maintenance and modification of emotional states (Salas-Auvert & Felgoise, 2002), has enabled this research to move one step closer to understanding conflict-handling styles.

Given the change in demographics and the large number of school principals that will need to be hired over the next ten years (Stewart, 2006) there have been few
opportunities for Australian school principals to learn on the job which has further added to the shortage of suitable candidates (Odhiambo, 2008). Executive coaching has become the most common practice designed specifically to assist leaders learn on the job; however, more evidence is needed to assess the validity of coaching programmes (McCall & Hollenbeck, 2007).

With future school reforms requiring schools to constantly change and leaders expected to deal with increased complexity (Riggio & Conger, 2007), there is a strong need for the development of executive coaching programmes tailored to meet the needs of established school principals. These programmes also need to identify aspects of leadership that are associated with student outcomes (Ingvarson, Anderson, Gronn & Jackson, 2006). Successful school principals of the future may be those who use influence rather than authority to foster strong relationships with members of the school community (Odhiambo, 2008) and seek to improve their leadership effectiveness through professional programmes, such as the coaching intervention programme developed in this thesis, that has been specifically designed to enhance transformational leadership techniques by changing how leaders think.

In a review of literature Leithwood and Jantzi (2005) concluded positively that transformational school leadership is “beginning to be significant.” Transformational leadership is predicted to evolve over the coming years and it is likely that this will be accompanied by even greater uncertainty and ambiguity (Stewart, 2006). This research has moved one step closer to understanding the interaction between the rational and experiential systems in relation to transformational leadership, conflict-handling styles and selected educational outcomes. To extend this research it is important that future studies examine the rational (cognitive) and experiential (affective) dimensions of transformational
leadership (Albrecht, 2005) to determine if strong relationships found in this research have predictive value in other organizational settings.
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APPENDIX 1

Rational Experiential Inventory

Instructions:
Please read and rate the following statements about your feelings, beliefs, and behaviours using the scale below. Work rapidly; first impressions are as good as any.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definitely False</td>
<td>Mostly False</td>
<td>Undecided or Equally True &amp; False</td>
<td>Mostly True</td>
<td>Definitely True</td>
</tr>
</tbody>
</table>

___ 1. I’m not that good at figuring out complicated problems.
___ 2. If I were to rely on my gut feelings, I would often make mistakes.
___ 3. I prefer complex to simple problems.
___ 4. I generally don’t depend on my feelings to help me make my decisions.
___ 5. I have no problem in thinking things through clearly.
___ 6. When it comes to trusting people, I can usually rely on my gut feelings.
___ 7. Thinking is not my idea of an enjoyable activity.
___ 8. I like to rely on my intuitive impressions.
___ 9. I am not a very analytical thinker.
___ 10. I believe in trusting my hunches.
___ 11. I enjoy solving problems that require hard thinking.
___ 12. I think it is foolish to make important decisions based on feelings.
___ 13. I suspect that my hunches are inaccurate as often as they are accurate.
___ 14. I usually have clear, explainable reasons for my decisions.
15. Knowing the answer without having to understand the reasoning behind it is good enough for me.

16. I would not want to depend on anyone who described himself or herself as intuitive.

17. Using logic usually works well for me in figuring out problems in my life.

18. I enjoy intellectual challenges.

19. I can usually feel when a person is right or wrong, even if I can’t explain how I know.

20. I often go by my instincts when deciding on a course of action.

21. My snap judgments are probably not as good as most people’s.

22. Reasoning things out carefully is not one of my strong points.

23. I don’t like situations in which I have to rely on intuition.

24. I try to avoid situations that require thinking in depth about something.

25. I trust my initial feelings about people.

26. I have a logical mind.

27. I don’t think it is a good idea to rely on one’s intuition for important decisions.

28. I don’t like to have to do a lot of thinking.

29. I don’t have a very good sense of intuition.

30. I am not very good in solving problems that require careful logical analysis.

31. I think there are times when one should rely on one’s intuition.

32. I enjoy thinking in abstract terms.

33. Using my gut feelings usually works well for me in figuring out problems in my life.

34. I don’t reason well under pressure.

35. I tend to use my heart as a guide for my actions.

36. Thinking hard and for a long time about something gives me little satisfaction.
37. I hardly ever go wrong when I listen to my deepest gut feelings to find an answer.

38. I am much better at figuring things out logically than most people.

39. Intuition can be a very useful way to solve problems.

40. Learning new ways to think would be very appealing to me.
APPENDIX 2

CTI Questionnaire

Instructions:

Use the scale below to rate the statements on the following pages. To answer each statement, place a number in front of the question that indicates your answer. Please record your answer directly on the following pages. For example, if you believe that the statement “two plus two equals four” is definitely true, you would record your answer in the following way:

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definitely False</td>
<td>Mostly False</td>
<td>Undecided or Equally True &amp; False</td>
<td>Mostly True</td>
<td>Definitely True</td>
</tr>
</tbody>
</table>

106. Two plus two equals four.

Please rate all items and mark only one response for each item. If you wish to change a response, please erase your first answer, and then record the correct answer. Be sure that your first answer is erased completely. If you cannot erase your first answer, cross out the incorrect answer and record the correct answer next to it.

This questionnaire contains some “silly” items, such as “I have never seen anyone with blue eyes.” The purpose of these items is to check whether people have been careless or lost their place. Please answer these items correctly. The questionnaire also contains items that check whether people have made themselves look too good. If you just select the best answers instead of answering honestly, your test will not be valid. Do not worry about any one item, because no single item is very important. The best way to take this test is to respond honestly and rapidly.

“Permission granted for the reproduction of the CTI for this research purpose by Seymour Epstein. Copyright 1987, 2001 by Psychological Assessment Resources, Inc. All rights reserved.” For both research and commercial application enquiries contact the Australian Distributor for Psychological Assessment Resources, Inc. (USA) - Australian Council of Educational Research (ACER), 347 Camberwell Road (Private Bag 55), Camberwell Victoria Australia 3124. (Toll Free 1800 338 402, T: 61-3-9835 7447).
Constructive Thinking Inventory

Instructions:

Please read and rate the following statements about your feelings, beliefs, and behaviours using the scale below. Work rapidly; first impressions are as good as any.

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Definitely False</td>
<td>Mostly False</td>
<td>Undecided or Equally True &amp; False</td>
<td>Mostly True</td>
<td>Definitely True</td>
</tr>
</tbody>
</table>

___ 1. I believe almost all people are basically good at heart.

___ 2. I sometimes think that if I want something to happen too badly, it will keep it from happening.

___ 3. When I have a lot of work to do by a deadline, I waste a lot of time worrying about it instead of just doing it.

___ 4. I believe some people have the ability to read other people’s thoughts.

___ 5. When something good happens to me, I believe it is likely to be balanced by something bad.

___ 6. If I do well on a test, I realize that it is only a single test, and it doesn’t make me feel generally competent.

___ 7. I believe there are some people who can project their thoughts into other people’s minds.

___ 8. I tend to classify people as either for me or against me.

___ 9. When doing unpleasant chores, I make the most of it by thinking pleasant or interesting thoughts.

___ 10. I feel that if people treat you badly, you should treat them the same way.

___ 11. When I have learned that someone I love loves me, it has made me feel that I am a wonderful person and I can accomplish whatever I want.

___ 12. If something good happens to me, I tend to assume that it is luck.
___ 13. When I have a very frightening experience, the thought of it is likely to come back to my mind several times.

___ 14. I don’t let little things bother me.

___ 15. Astrology will never explain anything.

___ 16. I look at challenges not as something to fear, but as an opportunity to test myself and learn.

___ 17. I think everyone should love his or her parents.

___ 18. I take failure very hard.

___ 19. What others think of me bothers me not the least.

___ 20. I believe if I think terrible thoughts about someone, it can affect that person’s well-being.

___ 21. I spend much more time mentally rehearsing my failures than remembering my successes.

___ 22. I sometimes get annoyed by people who express unreasonable opinions.

___ 23. I believe that it is almost always better to come to firm decisions than to compromise.

___ 24. If someone I know were successful at an important job interview, I would think that he or she would always be able to get a job done.

___ 25. I am very sensitive to rejection.

___ 26. I’ve learned not to hope too much, because what I hope for usually doesn’t happen.

___ 27. Most birds can run faster than they can fly.

___ 28. I believe that the moon or the stars can affect people’s thinking.

___ 29. If I said something foolish when I spoke up in a group, I would chalk it up to experience and not worry about it.

___ 30. When faced with a large amount of work to complete, I tell myself I can never get it done and feel like giving up.

___ 31. When something bad happens to me, I feel that more bad things are likely to follow.

___ 32. The slightest indication of disapproval gets me upset.
___ 33. I have never learned to read.

___ 34. It is so distressing for me to try hard and fail, that I rarely make an all-out
effort to do my best.

___ 35. I believe that most people are interested in themselves.

___ 36. I worry a great deal about what other people think of me.

___ 37. When I realize I have made a mistake, I usually take immediate action to
correct it.

___ 38. If I do poorly on an important test, I feel that I am a total failure and that I
won’t go far in life.

___ 39. I believe that if I wish hard enough for something, it can make it happen.

___ 40. I believe in trusting in my first impressions.

___ 41. When I am faced with a difficult task, I think encouraging thoughts that
help me do my best.

___ 42. I believe that people who wear glasses usually can see better without their
glasses.

___ 43. I believe that some people can make me aware of them just by thinking
about me.

___ 44. My mind often drifts to unpleasant events from the past.

___ 45. I am the kind of person who takes action rather than just thinks or
complains about a situation.

___ 46. There are two possible answers to every question, a right and a wrong one.

___ 47. I believe that it is best, in most situations, to emphasize the positive side of
things.

___ 48. If someone I know does well on an important test, I feel that he or she is a
total success and will go very far in life.

___ 49. I don’t worry about things I can do nothing about.

___ 50. I have washed my hands before eating at least once in the last month.

___ 51. If I have something unpleasant to do, I try to make the best of it by thinking
in positive terms.
52. If I do well on an important test, I feel that I’m a total success and that I will go far in life.

53. I believe in ghosts.

54. I feel like a total failure if I don’t achieve the goals I set for myself.

55. There are two kinds of people in this world, winners and losers.

56. If I were successful at an important job interview, I would feel very good and think that I would always be able to get a job.

57. Unless I do a perfect job, I feel like a failure.

58. When I take an examination, I usually think I did much worse than I actually did.

59. When something good happens to me, I feel that more good things are likely to follow.

60. I am tolerant of my mistakes because I feel they are a necessary part of learning.

61. When unpleasant things happen to me, I don’t give them a second thought.

62. Most people regard me as a tolerant and forgiving person.

63. If I were rejected at an important job interview, I would feel very low and think that I would never be able to get a good job.

64. When I do poorly at something, it does not bother me as long as I know I have done my best.

65. I tend to take things personally.

66. I have at least one good luck charm.

67. I have never seen anyone with blue eyes.

68. I don’t feel that I have to perform exceptionally well in order to consider myself a worthwhile person.

69. People should try to look happy, no matter what they feel.

70. I avoid challenges because it hurts too much when I fail.

71. The only person I can completely trust is myself.

72. It doesn’t bother me when people who know less than I do act superior and give me advice.
73. I am very sensitive when people make fun of me.
74. Although women sometimes wear pants, they do not wear them, on the average, as often as men.
75. I have found that talking about successes that I am looking forward to can keep them from happening.
76. Whenever good things happen to me, I have the feeling that I deserve them.
77. I think there are many wrong ways to do almost anything, but only one right way.
78. I spend a lot of time thinking about my mistakes, even if there is nothing I can do about them.
79. I like to succeed, but I don’t take failure as a tragedy.
80. At times when I’ve been ill or tired, I have felt like going to bed early.
81. It is foolish to trust anyone completely because, if you do, you are bound to get hurt.
82. When I have a lot of important things to take care of, I make a plan and stick to it.
83. When someone I love has rejected me, it has made me feel that I am inadequate and that I will never accomplish anything.
84. If you don’t eat, you will die.
85. I tend to dwell more on pleasant than unpleasant incidents from the past.
86. I believe in good and bad omens.
87. I am not bothered in the least when people insult me for no good reason.
88. When someone I know is loved by a person they love, I feel that they are a wonderful person and can accomplish whatever they want to.
89. I get so distressed when I notice that I am doing poorly in something that it makes me do worse.
90. I try to accept people as they are without judging them.
91. When unpleasant things happen to me, I don’t let them prey on my mind.
92. If I do very poorly on a test, I realize it is only a single test, and it doesn’t make me feel generally incompetent.
93. I believe once a criminal, always a criminal.

94. I believe there are people who can see into the future.

95. I believe that anyone who isn’t lazy can always find a job.

96. I find it hard to change my mind once I have made a decision.

97. I do not believe in any superstitions.

98. I don’t get very distressed over the mistakes of others, but try to deal with them in a constructive way.

99. When faced with a challenging situation, I try to imagine the best outcome and avoid dwelling on what might go wrong.

100. I believe that if I do something, then good things will happen to me.

101. I believe in flying saucers.

102. I try to make an all-out effort in most things I do.

103. I have learned from bitter experience that most people are untrustworthy.

104. When I am faced with a new situation, I tend to think the worst possible outcome will happen.

105. When faced with upcoming unpleasant events, I usually carefully think through how I will deal with them.

106. Two plus two equals four.

107. There are basically two kinds of people in this world, good and bad.

108. When something unfortunate happens to me, it reminds me of all other things in my life, which adds to my unhappiness.
Example of Constructive and Destructive Reactions to the Same Event (Epstein, 1998a).

Constructive Sequence

Event
Mary did not say “Hi”

Construal
“Mary is preoccupied”

Emotion
Puzzled about why

Secondary Mental Response
“Maybe something is bothering her”

Destructive Sequence

Event
Construal
“Mary is selfish”

Emotion
Annoyed

Secondary Mental Response
“Mary thinks she is better than me. I’ll show her what that feels like!”

Emotion
Angry

Behaviour
Maintains friendly relationship

Behaviour
Develops antagonistic relationship
APPENDIX 4

ROCI - II

Instructions:

The items below are concerned with how you deal with conflict. Please indicate to what extent you agree or disagree with each item using the scale below.

<table>
<thead>
<tr>
<th></th>
<th>SA</th>
<th>A</th>
<th>N</th>
<th>D</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Strongly Agree</td>
<td>Agree</td>
<td>Neutral or Unsure</td>
<td>Disagree</td>
<td>Strongly Disagree</td>
</tr>
</tbody>
</table>

___ 1. I collaborate with my colleague(s) to come up with decisions acceptable to both of us.

___ 2. I use my expertise to make a decision in my favour.

___ 3. I try to investigate an issue with my colleague(s) to find a solution acceptable to us.

___ 4. I generally try to satisfy the needs of my colleague(s).

___ 5. I try to work with my colleague(s) for a proper understanding of the problem.

___ 6. I negotiate with my colleague(s) so that a compromise can be reached.

___ 7. I usually propose a middle ground to break the deadlock.

___ 8. I try to integrate my ideas with those of my colleague(s) to come up with a decision jointly.

___ 9. I try to work with my colleague(s) to find solutions to the problem which satisfy both our expectations.

___ 10. I try to stay away from disagreement with my colleague(s).

___ 11. I avoid an encounter with my colleague(s).

___ 12. I try to find a middle course to resolve the impasse.
13. I am generally firm in pursuing my side of the issue.

14. I exchange accurate information with my colleague(s) to solve the problem together.

15. I try to avoid unpleasant exchanges with my colleague(s).

16. I attempt to avoid being “put on the spot” and try to keep my conflict with my colleague(s) to myself.

17. I try to satisfy the expectations of my colleague(s).

18. I try to bring all our concerns out in the open so that the issues can be resolved in the best possible way.

19. I sometimes use my power to win a competitive situation.

20. I usually allow concessions to my colleague(s).

21. I usually avoid open discussions of my differences with my colleague(s).

22. I try to keep my disagreement with my colleague(s) to myself in order to avoid hard feelings.

23. I use my authority to make a decision in my favour.

24. I usually accommodate the wishes of my colleague(s).

25. I often go along with the suggestions of my colleague(s).

26. I give in to the wishes of my colleague(s).

27. I use “give and take” so that a compromise can be made.

28. I use my influence to get my ideas accepted.
APPENDIX 5

Study 3. Description of School Type, Student Numbers, and Staff Responses.

<table>
<thead>
<tr>
<th>School number</th>
<th>School type</th>
<th>Number of students</th>
<th>Number of surveys responses received from staff (pre and post)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intervention group</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>K-12</td>
<td>880</td>
<td>22/100</td>
</tr>
<tr>
<td>2</td>
<td>K-12</td>
<td>1300</td>
<td>61/200</td>
</tr>
<tr>
<td>3</td>
<td>K-12</td>
<td>720</td>
<td>16/100</td>
</tr>
<tr>
<td>4</td>
<td>7-12</td>
<td>700</td>
<td>12/100</td>
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<tr>
<td>Control group</td>
<td></td>
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<tr>
<td>14</td>
<td>K-12</td>
<td>930</td>
<td>19/100</td>
</tr>
</tbody>
</table>
APPENDIX 6

INFORMATION PROCESSING
AND LEADERSHIP STYLES

Constructive Thinking and Transformational Leadership

TOM CERNI, GUY J. CURTIS, AND SUSAN H. COLMAR

Transformational leaders increase job satisfaction and well-being among workers. According to the cognitive-experiential self-theory (CEST), all behavior is guided by two information-processing systems: a rational and an experiential system. Study 1 examined the relationship between information processing and transformational leadership among experienced school leaders (N = 183). The rational system had a strong positive correlation with transformational leadership, whereas the experiential system was weakly correlated. Study 2 (N = 126) examined constructive thinking and transformational leadership. Global constructive thinking, emotional coping, and behavioral coping all had strong positive correlations with transformational leadership. These results suggest that improving leaders' awareness of their own information-processing and thinking systems might encourage more productive transformational-leadership techniques.

More is known about leaders' traits and behaviors than about the thoughts and feelings that underlie these characteristics (Bass, 2002; Borman, Rubin, & Baldwin, 2004). Moreover, leaders commonly experience differences between what they think and how they feel (Leithwood, 1994; Pacini & Epstein, 1999). In an education context, a high-performing principal recognizes that the tensions created by daily dilemmas require attention from both the cognitive and affective perspectives, and finding a balance involves considering the logical solution as well as the intuitive one (Lindsay, Halkes, & Welch, 2004). It has been proposed that the key to successful leadership might reside in the intersection between intellect and emotions (Buono, 2003; Goleman, Boyatzis, & McKee, 2002), as both influence what leaders do (Leithwood, 1994).

According to the cognitive-experiential self-theory (CEST), intellect and emotions are controlled by a rational and an experiential system, respectively (Epstein, 1998c). On the surface, the distinction between the rational and experiential systems resembles Freud's primary and secondary processes. While Freud acknowledged unconscious processing by making a distinction between primary processes, based on pre-conscious and irrational codes, and secondary processes, based on conscious and rational codes (Matthews, Zeidner, &

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Roberts, 2002), a critical weakness in his theory was that he made little reference to how humans process information from an evolutionary perspective.

The new cognitive unconscious is considered to be an adaptive system that automatically, effortlessly, and intuitively organizes experience and directs behavior (Epstein, 1994). Epstein and his colleagues have provided research evidence to support the existence of an automatic, intuitive mode of information processing that operates by a different set of rules from the rational system. CEST resembles the evolutionary idea that emotions are mostly unconscious automatic processes whereas rational thinking is a slower and more deliberate system that can influence, and be influenced by, emotions.

One way of measuring the rational system is through IQ tests, which essentially involve the ability to solve abstract problems and make logical connections (Epstein, 1998a). The experiential system, on the other hand, involves practical, social, and emotional behaviors (Epstein, 1998c). It may be helpful for leaders to understand that different tasks require different information-processing skills. Leadership tasks that require abstract and symbolic reasoning may demand the strong, rationally-oriented skills associated with the rational system. By contrast, tasks that require judging people in social situations and understanding their emotional states may require the utilization of the experiential system (Berger, 2007). If leaders are better able to understand their own rational and experiential systems and how the two systems need to regulate each other for the leader to respond adaptively (Berger, 2007), the development of more productive leadership outcomes may result.

The full range leadership theory (FRLT; Antonakis, Avolio, & Sivasubramaniam, 2003) represents nine single-order factors comprising five transformational factors, three transactional factors, and one nontransactional laissez-faire factor. Eight of the leadership factors are about behaviors (e.g., “waits for things to go wrong before taking action”), and one concerns attributes (e.g., “instills pride for being associated with them”; Elliot, 2004). Transactional leadership “emphasizes the transaction or exchange that takes place among leaders, colleagues, and followers” (Bass & Avolio, 1994, p. 3) and is typically presented through the setting of objectives and through monitoring and controlling outcomes (Antonakis et al.). On the other hand, transformational leadership sets out to “motivate others to do more than they originally intended and often more than they thought possible” (Bass & Avolio, 1994, p. 3). A transformational leader differs from a transactional one by not only recognizing the follower’s needs but by engaging the full person in an attempt to develop them as leaders (Bass & Avolio, 1997).

Whereas transformational approaches to leadership have increasingly been suggested for schools (Barnett & McCormick, 2004), no research has examined the connection between CEST and the FRLT in the educational setting. We will now outline these theories in more detail before moving on to our research, which examined the connection between them.

### Cognitive-Experiential Self-Theory

Epstein has found empirical support for the theoretical model that people are influenced by the rational and the experiential systems. The range of influence generated by each system can be minimal to almost complete dominance, depending on the context, person, and emotional involvement (Denes-Raj & Epstein, 1994; Luthans, Newstead, & Wright, 2000). Although the rational and experiential systems can be in conflict with each other, it has been suggested that the constructive interaction between the two systems can potentially be a source of intuitive wisdom and creativity (Bucci, 1985; Epstein, 1994).

From the perspective of CEST, the experiential system operates automatically at the preconscious level and is closely associated with affect (Epstein, Pacini, Denes-Raj, & Heier, 1996). The experiential system learns directly from experience and is capable of operating at both low and high levels of functioning. At the lower levels of operation, the experiential system is seen as a crude system, having a tendency to process both simple and complex information automatically, rapidly, effortlessly, and efficiently (Epstein, 1998b). At the highest level of operation and especially when interacting with the rational system, the experiential system can make an important contribution to insight and imagination (Epstein, 1994).

In contrast to the experimental system, the rational system operates logically and mostly at the conscious level (Epstein et al., 1996). The rational system is a deliberate, effortful, abstract system that operates exclusively through language. Like the experiential system, it can operate at high levels of abstraction and is associated with long-term delay of gratification. However, this system is not well suited to responding to everyday events (Epstein, 1998a). As such, under many circumstances, the experiential system may be more efficient than the rational system in solving problems (Epstein, Denes-Raj, & Pacini, 1995).
Each system of information processing has its own advantages: for example, high scores on rational thinking are associated with superior IQ and low levels of anxiety, stress, and depression (Epstein, 1998b). On the other hand, high scores on experiential thinking have been associated with establishing secure relationships with others and with high behavioral coping, acceptance of others, optimism, and action-orientation (Epstein et al., 1998).

Most people are aware of their own rational system because it operates at the conscious level. In contrast, the experiential system operates automatically and at the conscious and preconscious levels, so people may not be aware of its influence (Epstein, 1998e). CEST assumes that the preconscious continuously influences processing at the conscious level (Epstein, 2004). The experiential system can, therefore, influence the rational system without the rational system’s awareness of that influence (Epstein, 2006; see Figure 1). It is argued that as soon as the rational system detects the influence of the experiential system, the leader may decide to adjust their cognitive processing accordingly. The rational system can be used to correct the experiential system by identifying the leaders’ automatic thoughts and evaluating them as either constructive or destructive. The most direct way to correct the experiential system is to provide it with a set of corrective experiences (Epstein, 2003).

When it comes to leadership, both the rational and experiential systems can offer assistance to the leader. While the experiential system appears to complement the experience-based approaches to management learning, it has been suggested that greater emphasis needs to be placed on language and conversation (Kayes, 2002). The rational system appears to complement management learning as it can assist the leader to make logical inferences and solve abstract problems. The rational system also appears to complement Kolb’s (1984) experiential-learning theory by facilitating the dialogue process, a process that is thought to be in continual flux and movement (Kayes). The experiential system, on the other hand, with its intimate associations with affect, can facilitate the leader’s interpersonal relationships with his/her followers (Epstein, 1998c). Furthermore, by understanding the influence of the experiential system, the leader can better control for their biases and also behave relatively, objectively, and realistically (Epstein, 2003).

**Transformational and Transactional Leadership**

Research suggests that, depending on the situation, an effective form of leadership consists of both transformational and transactional factors (Bass, 1985; Bass & Steidlmeier, 1999). Transformational leaders are likely to utilize both transformational and transactional leadership at different times and with different followers, depending on the individuals and the situation (Robbins, Millett, Cacioppo, & Waters-Marsh, 1998). Transformational leadership augment the effectiveness of transactional leadership; it does not replace transactional leadership (Bass, 1997; Kanungo & Mendonca, 1996).

Studies on transformational and transactional leadership have been completed in business, industry, government, military, nonprofit, and educational organizations (Bass

**Figure 1.** Characteristics of the rational and experiential information-processing systems

[Diagram showing characteristics of rational and experiential systems]

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& Avolio, 1994). Employees working under a transformational leader in an educational setting are more likely to display increased motivation (Bögler), job satisfaction, and commitment (Geisler, Sleegers, & van den Berg, 1999). School principals rated highly by their staff on dimensions of transformational leadership demonstrated relatively high levels of problem-solving expertise (Leithwood, 1994). Transformational principals also contributed positively to teachers’ satisfaction, both directly and indirectly (Bögler).

Evidence has accumulated over the last 20 years linking transformational leadership behavior to several positive outcomes; however, the focus has predominantly been “downstream” on outcomes such as job satisfaction (Bommer et al., 2004). While there is a growing body of evidence outlining the benefits of transformational leadership, including the improvement of the well-being of employees (Arnold, Turner, Barling, Kelloway, & McKee, 2007), the promotion of positive emotions (Bono, Forde, Vinson, & Muros, 2007), and creating positive employee-service performance (Liao & Chun, 2007), research has yet to determine the type of information-processing systems leaders use to deliver these benefits. In education, no research has focused “upstream” to examine the way leaders process information according to CEST; yet it is acknowledged that solving the daily dilemmas of the principalship requires examining information from not only the rational and logical perspective but also the emotional perspective (Lindsay et al., 2004).

In response to questions raised about how information-processing systems are related to leadership (Atwater & Yammarino, 1993; Drach-Zahavy & Sonech, 1999), the present investigation suggests that part of the answer may be found in the way the rational and experiential systems are aligned and come to influence each other according to the principles of the CEST (Epstein, 1998c).

**Leadership and Information Processing**

Leadership studies in the past have focused heavily on leaders’ rational cognitive capabilities (Chenner & Hope, 2001). Acknowledging the importance of rationality (Bass, 1985), there has also been a growing interest in how leaders manage their emotions (Goleman et al., 2002). This is particularly important when it comes to transformational leadership, as emotional processes are considered to be as important as rational processes (Yukl, 1998). Given that the rational system is strongly associated with logic and the experiential system with emotions, this is the first study that examines the connection between the rational and experiential systems and the FRLT.

Both the rational and experiential systems are predicted to overlap with the FRLT. Under the rational system, for example, a leader who is logical and promotes analytical reasoning may be more likely to intellectually stimulate followers. Indeed, rational intelligence does appear to correlate with leadership (Van Vugt, 2006). The experiential system, on the other hand, appears to overlap with individualized consideration, another factor of transformational leadership, due to its association with the development of interpersonal relationships (Epstein et al., 1996). Research on transformational leadership has shown that the selection of principals should include a process of identifying candidates with a proven history of exhibiting interpersonal skills consistent with individual concern (Barnatt & McCormick, 2004).

Interpersonal competence increases leaders’ effectiveness (Bass, 1985; Sternberg, 2003). For a leader to be effective it may also be necessary for the leader to communicate effectively, show a willingness and ability to promote individual relationships with others, show authenticity, caring, and an ability to handle conflict and display insight and empathy (Bass, 1990). Both the rational and experiential systems contribute to the development of interpersonal competence and effective leadership. The rational system has been found to be strongly associated with positive adjustment (low neuroticism, high ego strength and self-esteem), and the experiential system has been found to be strongly associated with interpersonal relationships including extraversion, trust, and emotional expressivity (Epstein et al., 1996; Paini & Epstein, 1999).

This article reports two studies that examined how the rational and experiential systems overlap and influence each other in relation to transformational and transactional leadership in an education setting. As both studies assessed the respondents’ belief and perception constructs, the use of self-report measures was considered a valid approach compared with other non-self-report measures (Chan, 2007).

Study 1 explored the hypothesis that transformational leadership (consisting of Idealized Influence–Attributed, Idealized Influence–Behavior, Inspirational Motivation, Intellectual Stimulation, and Individualized Consideration) will be strongly correlated to both rational and experiential information-processing systems. Study 2 examined the constructive nature of thinking in the experiential system and its connection with transformational and transactional leadership.
Study 1

Employing a correlational design, this study collected survey data on information processing and leadership from principals of independent schools. The sample used in both studies consisted of principals from high schools, elementary schools, and special schools.

METHOD

Data Collection Procedure

A total of 468 surveys were sent out to principals of independent schools in New South Wales and The Australian Capital Territory (NSW/ACT). The survey package consisted of a cover letter, demographic questionnaire, the Rational-Experiential Inventory—Long Form (REI-L), and the Multi-factor Leadership Questionnaire (MLQ) Form 5X questionnaire. A total of 168 (36%) questionnaires were returned. Three hundred reminder letters were sent out, resulting in the return of 15 additional questionnaires. A total of 183 school principals returned the questionnaires, representing a response rate of 39%, which is slightly higher than typical mail-out, mail-back surveys (Sanvid & Muller, 2004).

Participants

Of the 183 principals, 56% were male and 44% were female. Their mean age was 50.2 years (men 50.5 years and women 49.8 years). The average number of years in the teaching profession was 26, with an average of 6 years range 2 months to 23 years) in the position of principal. About half (51%) of the schools catered to both elementary and secondary levels, 32% were solely elementary, and 16% were solely secondary. Thirty-one percent had fewer than 200 students, 34% had 201–600 students, 18% had 601–1,000 students, and 17% had more than 1,000 students. On average, schools had 46 teaching staff and 17 support staff.

Measures

Rational-Experiential Inventory—Long Form (REI-L). The REI-L is a 40-item questionnaire consisting of four 10-item subscales: rational ability, rational engagement, experiential ability, and experiential engagement. Rational ability, for example, indicates an ability to think logically and analytically ("I have no problem thinking things through carefully"); Pacini & Epstein, 1999). The four scales can be collapsed to provide total scores for rational and experiential information processing. The REI’s test-retest correlations are sufficiently high, ranging from .80 to .83 (Handley et al., 2000; Pacini & Epstein, 1999). In Study 1 the alpha reliabilities for the rational information-processing, experiential information-processing, and their respective subscales ranged from .83 to .90. Total rational and experiential scores were unrelated (r = .02, p = .83), providing evidence for the independence of the two information-processing systems.

Multi-factor Leadership Questionnaire (MLQ) Form 5X. The MLQ (5X) (Bass & Avolio, 1997) consists of 45 items, each describing one aspect of the respondent’s leadership behavior, for example, “I keep track of all mistakes” (Sarros & Santora, 2001). The MLQ (5X) is a valid and reliable instrument that can adequately measure nine components of the FRLT (Antonakis et al., 2003). The MLQ (5X) measures nine single-order leadership factors plus three outcome scales. The five transformational leader factors are: idealized influence–aroused, idealized influence–behavioral, inspirational motivation, intellectual stimulation, and individualized consideration. The three transactional factors are: contingent reward, management–by–exception–active, and management–by–exception–passive. In addition, one nontransactional factor is included, laissez-faire leadership. The MLQ (5X) also assesses three leadership outcomes: extra effort, effectiveness, and satisfaction (Antonakis et al., 2003). The reliabilities in Study 1 for the main MLQ factors including the three leadership outcomes were as follows: transformational (α = .85), transactional (α = .66), laissez-faire (α = .45), extra effort (α = .58), effectiveness (α = .65), and satisfaction (α = .65). Although some of the alphas were low, for example, laissez-faire leadership (α = .49), the alphas for the main scales of interest were good.

RESULTS

Determining the Best Predictors of Transformational and Transactional Leadership

To determine the relationship between information-processing systems and transformational and transactional leadership, Pearson’s correlations were computed between the REI-L and the MLQ (5X). There was a significant positive correlation between the rational system and transformational leadership (see Table 1). The five factors that make up transformational leadership were all significantly correlated with the rational system: idealized influence–aroused (r = .26, p < .01); idealized influence–behavioral (r = .46, p < .01); inspirational motivation (r = .46, p < .01); intellectual stimulation (r = .44, p < .01); and individualized consideration (r = .28, p < .01). A weak positive correlation was found between the experiential
system and transformational leadership (see Table 1). There was also a significant positive correlation between the rational system and three leadership outcomes: extra effort, effectiveness, and satisfaction. No significant correlations were found between the two information-processing systems and transactional leadership (see Table 1). Given the low alpha reliability and the absence of significant correlations between information processing and the transactional leadership factor, no additional analysis was conducted using the transactional scale.

To test for the joint contribution of the rational and experiential systems in predicting transformational leadership, multiple regressions were calculated using the transformational leadership scores as the criterion variable. The results of this analysis supported the correlational results. There was a strong relationship between scores for rational processing and transformational leadership ($\beta = .49, p < .001$). The adjusted $R^2$ for rational ability shows that 21% of the transformational criterion could be explained by this construct. Combining rational ability and rational engagement accounted for 29% of transformational leadership scores (see Table 2).

**Study 2**

Given the unexpectedly weak correlation between the experiential system and transformational leadership in Study 1, the next step was to examine the properties of the experiential system, noting that leaders can be both constructive and destructive in their experiential thinking. Constructive and destructive thinking are theoretical components of the experiential system (Epstein et al., 1996). Constructive thinking is defined as the degree to which a person's automatic thinking facilitates solving problems in everyday life at a minimum cost in stress (Epstein, 1998c). The constructive components of the experiential system include global constructive thinking, emotional coping, and behavioral coping. The destructive components include personal distortions, catastrophic thinking, academic thinking, and negative attribution (Epstein, 2001).

The Constructive Thinking Inventory (CTI) was developed by Epstein (2001) to measure the constructive and destructive automatic thoughts of people and the way they view themselves and the world. The well-being and effectiveness of the leader has been found to be influenced by the extent to which they use constructive thinking. Indeed, leaders who are good constructive thinkers experienced less stress, were happier with their jobs, and reported fewer mental health problems (Green, 1988).

Only two studies have examined the relationship between constructive thinking and transformational leadership; those by Aronson and Yammarino (1995) and Dubinsky, Yammarino, and Jolion (1995). Aronson and Yammarino's study examined the relationship between military leaders' personal attributes and leadership. Behavioral coping was positively related to leader ratings of transformational and transactional leadership; however, emotional coping was negatively correlated to followers' ratings of transformational and transactional leadership. Examining the personal characteristics of sales managers with transformational leadership, Dubinsky et al. found no correlations between transformational leadership and behavioral and emotional coping among a small group of sales managers ($N = 34$). However, when controlling for experience they found a partial-order correlation between behavioral coping and inspirational leadership.

### Table 1. Pearson's Product Moment Correlation Coefficients: Relationship Between Information Processing and Leadership Style

<table>
<thead>
<tr>
<th>Leadership Style</th>
<th>Rational Total</th>
<th>Experiential Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transformational</td>
<td>.50**</td>
<td>.13*</td>
</tr>
<tr>
<td>Transactional</td>
<td>-.03</td>
<td>.03</td>
</tr>
<tr>
<td>Laissez-Faire</td>
<td>-.24**</td>
<td>.01</td>
</tr>
<tr>
<td>Extra Effort</td>
<td>.21**</td>
<td>.11</td>
</tr>
<tr>
<td>Effectiveness</td>
<td>.31**</td>
<td>.41*</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>.29**</td>
<td>.04</td>
</tr>
</tbody>
</table>

*Note: N = 182. *p < .05. **p < .01. Men, n = 103; Women, n = 80.*

### Table 2. Summary of Regression Analysis for Variables Predicting Transformational Leadership

<table>
<thead>
<tr>
<th>Variable</th>
<th>Adjusted R Square</th>
<th>$\beta$</th>
</tr>
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<tbody>
<tr>
<td>Rationality Total</td>
<td>.424</td>
<td>.49</td>
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<tr>
<td>Ability</td>
<td>.215</td>
<td>.465</td>
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<tr>
<td>Favorability</td>
<td>.168</td>
<td>.416</td>
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<tr>
<td>Experientiality Total</td>
<td>.009</td>
<td>.116</td>
</tr>
<tr>
<td>Ability</td>
<td>.014</td>
<td>.140</td>
</tr>
<tr>
<td>Favorability</td>
<td>.004</td>
<td>.056</td>
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</table>

*Note: N = 182. Men, n = 103; Women, n = 80.*
The mixed results in both studies may, in part, be explained by their design. Both studies used selected CTI scales to measure personal attributes of military leaders and sales managers, however, they failed to account for the argument that people process information by two parallel, bidirectional, interacting systems and that the degree to which they think constructively is influenced by the automatic thinking of the experiential system (Epstein, 1999b). Neither study compared rational and experiential information processing with transformational and transactional leadership. Furthermore, both studies examined inexperienced leaders. For example, Atwater and Yaminmarino (1993) used leaders who were in their junior or senior year of college. No study has examined the relationship between information processing and transformational leadership among experienced leaders.

The present study explored the hypotheses that constructive properties of the experiential system will correlate positively to transformational leadership, and that constructive thinking will moderate the connection between experiential processing and transformational leadership.

METHOD
Design, Participants, and Procedure
Data on constructive thinking was collected from principals of independent schools in NSWACT. One hundred eighty-three surveys containing the Constructive Thinking Inventory (CTI) were sent out to the principals who responded to Study 1. Surveys containing the RIE1L, MLQ 5X, and CTI were sent to the remaining 285 principals listed in the original mail-out list. One hundred forty-seven surveys were returned; 130 CTIs from the original 183 respondents (79% return rate) and 17 full surveys from the remaining 285 principals (6% return rate).

Of the 147 principals, 52% were male and 48% were female. Their mean age was 59.8 years (men 51.7 years and women 56.3 years) with a range of 33 years to 66 years and with the majority aged between 46 and 55 years (57%). The average number of years as principal was 9.5 years (range 1 to 33 years, with 36% holding the position between 1 to 5 years).

Measure
Constructive Thinking Inventory (CTI). The CTI (Epstein, 1999a) is a 108-item self-report measure used to assess constructive thinking. People respond to the CTI by indicating the degree to which they think in certain ways that are categorized as constructive and destructive (Epstein, 1999b).

The CTI provides a global constructive thinking scale and six main scales, with all but one having several subscales. The main scales are: emotional coping, behavioral coping, personal superstitions thinking, categorical thinking, intuitive thinking, and native optimism. High scores are desirable for global constructive thinking, emotional coping, behavioral coping, and their subscales. Low scores are desirable for personal superstitions thinking, categorical thinking, intuitive thinking, native optimism, and their subscales (Epstein, 2001). The global constructive thinking scale is a broad bipolar scale that includes items from all of the main scales except Experiential Thinking. The items found in the GCT scale are indicative of both constructive and destructive thinking. Of the 29 items in the GCT scale, 13 items are drawn from emotional coping, 8 items from behavioral coping, 4 from categorical thinking, 2 from personal superstitions thinking, 1 from native optimism, and 1 from global constructive thinking (Epstein, 2001).

The CTI also has two built-in lie scales: Defensiveness and validity. These scales are used as cut-off points for determining the validity of CTI scores (Epstein, 2001). Scores of 1.5 standard deviations or more below the mean on the validity scale or 1.5 standard deviations or more above the mean on the Defensiveness scale were rendered invalid and removed from further analysis. Of the 147 CTI questionnaires, 21 were removed from further analysis because their scores were outside the lie scale range. The CTI has well-documented evidence of construct validity and reliability (Epstein et al., 1996). The internal reliability coefficients for the main scales of the CTI derived from the 126 school principals in the current study ranged from the high .60s to low .80s, with the exception of personal superstitions thinking (α = .87), emotional thinking (α = .83), and its subscale degree of inner (α = .77), with the exception of personal superstitions thinking (α = .87), emotional thinking (α = .83), and its subscale degree of inner (α = .77), effectiveness (α = .80), and satisfaction (α = .80).

RESULTS
Determining the Relationship Between Constructive Thinking and Transformational Leadership
As in study 1, a significant positive correlation was found between the rational system and transformational leadership.
<table>
<thead>
<tr>
<th>Information Processing</th>
<th>M</th>
<th>SD</th>
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<td>1. Rational System</td>
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<td>9.36</td>
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<td>2. Experiential System</td>
<td>68.15</td>
<td>10.45</td>
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<td>3. Transformational</td>
<td>67.43</td>
<td>7.51</td>
<td>.56**</td>
<td>.19*</td>
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<td>4. Transactional</td>
<td>22.27</td>
<td>4.81</td>
<td>-.01</td>
<td>-.03</td>
<td>.16</td>
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<td>5. Laissez-Faire</td>
<td>2.61</td>
<td>2.05</td>
<td>-.32**</td>
<td>.02</td>
<td>-.33**</td>
<td>.29**</td>
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<tr>
<td>6. Global Constructive</td>
<td>112.92</td>
<td>10.64</td>
<td>.44**</td>
<td>.07</td>
<td>.50**</td>
<td>-.08</td>
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<tr>
<td>7. Emotional Coping</td>
<td>95.17</td>
<td>12.19</td>
<td>.34**</td>
<td>-.03</td>
<td>.33**</td>
<td>-.14</td>
<td>-.13</td>
<td>.87**</td>
<td>.80</td>
<td></td>
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<tr>
<td>8. Behavioral Coping</td>
<td>58.75</td>
<td>4.85</td>
<td>.46**</td>
<td>.05</td>
<td>.47**</td>
<td>.02</td>
<td>-.30**</td>
<td>.69**</td>
<td>.43**</td>
<td>.75</td>
<td></td>
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<tr>
<td>9. Personal Superstitions</td>
<td>19.40</td>
<td>1.95</td>
<td>.00</td>
<td>.15</td>
<td>.05</td>
<td>.00</td>
<td>-.15</td>
<td>.14</td>
<td>-.03</td>
<td>.19*</td>
<td>-.11</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>10. Categorical Thinking</td>
<td>39.61</td>
<td>4.13</td>
<td>-.23**</td>
<td>-.03</td>
<td>-.14</td>
<td>.09</td>
<td>-.01</td>
<td>-.19*</td>
<td>-.23**</td>
<td>-.16</td>
<td>.09</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>11. Exotic Thinking</td>
<td>23.05</td>
<td>7.98</td>
<td>.02</td>
<td>.29**</td>
<td>-.03</td>
<td>.12</td>
<td>.03</td>
<td>-.13</td>
<td>-.21*</td>
<td>.03</td>
<td>.34**</td>
<td>.12</td>
<td>.82</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>12. Naive Optimism</td>
<td>44.39</td>
<td>7.42</td>
<td>-.02</td>
<td>.18*</td>
<td>.03</td>
<td>.15</td>
<td>-.08</td>
<td>-.05</td>
<td>-.23**</td>
<td>.18*</td>
<td>.31**</td>
<td>.36**</td>
<td>.36**</td>
<td>.78</td>
<td></td>
<td></td>
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<tr>
<td>13. Defensiveness</td>
<td>23.06</td>
<td>3.93</td>
<td>.08</td>
<td>-.07</td>
<td>.06</td>
<td>-.09</td>
<td>-.07</td>
<td>.44**</td>
<td>.53**</td>
<td>.22**</td>
<td>-.03</td>
<td>-.06</td>
<td>-.06</td>
<td>.07</td>
<td>.58</td>
<td></td>
</tr>
<tr>
<td>14. Validity</td>
<td>37.80</td>
<td>2.30</td>
<td>.14</td>
<td>.07</td>
<td>.10</td>
<td>.12</td>
<td>.17*</td>
<td>.06</td>
<td>.11</td>
<td>.07</td>
<td>-.03</td>
<td>-.17*</td>
<td>-.19</td>
<td>-.09</td>
<td>-.06</td>
<td>.20</td>
</tr>
</tbody>
</table>

Note: The information processing, leadership, and constructive thinking results were derived from self-reported measures. Reliability coefficient estimates (Cronbach’s α) are in parentheses along diagonal. Personal Superstitious Thinking and Categorical Thinking were excluded from further analysis due to low Cronbach’s Alpha. N = 126. *p < .05, **p < .01.
The five factors of transformational leadership were also strongly correlated with the rational system: idealized influence–attributed (r = .39, p < .01), idealized influence–behavior (r = .45, p < .01), inspirational motivation (r = .54, p < .01), intellectual stimulation (r = .45, p < .01), and individualized consideration (r = .31, p < .01). A weak correlation was found between the experiential system and transformational leadership (r = .19, p < .05).

Weak, but significant, positive correlations were also found between the experiential system and two factors of transformational leadership: intellectual stimulation (r = .19, p < .05) and individualized consideration (r = .21, p < .05).

To examine the relationship between Constructive Thinking and Transformational leadership, correlations were computed between the CTI and the MLQ (55). There were significant positive correlations between the main scales of global constructive thinking, emotional coping, and behavioral coping with transformational leadership (see Table 3). Significant positive correlations were also found between emotional coping, behavioral coping, and their subscales, and transformational leadership. Significant negative correlations were found between laissez-faire leadership and the main scales of global constructive thinking, and behavioral coping. The behavioral coping subscales, action orientation, and conscientiousness were also negatively correlated with laissez-faire leadership. With the exception of absence of negative generalization, no significant correlations were found between constructive thinking and transactional leadership (see Table 4).

Regression analysis was used to test for the joint contribution of the rational system and the constructive element of the experiential system in predicting transformational leadership. Results indicated that rational processing (β = .42, p < .001), experiential processing (β = .16, p < .02), and

| Table 4. Descriptive Statistics, Reliabilities, and Intercorrelations Among the Subscales of Constructive Thinking Inventory and Leadership |
|-----------------|--------|--------|--------|--------|--------|
| Emotional Coping |        |        |        |        |        |
| Self Acceptance (SA) | 27.52  | 3.56   | .21**  | −.15   | −.01   |
| Absence of Negative Overgeneralization (ANOG) | 16.59  | 2.22   | .31**  | −.16*  | −.19*  |
| Nonsensitivity (NO) | 27.73  | 5.20   | .30**  | −.01   | −.05   |
| Absence of Dwelling (AOD) | 23.78  | 2.53   | .26**  | −.14   | −.17*  |
| Behavioral Coping |        |        |        |        |        |
| Positive Thinking (PT) | 15.59  | 2.41   | .25**  | .14    | −.03   |
| Action Orientation (AO) | 30.67  | 2.78   | .47**  | −.09   | −.38** |
| Conscientiousness (CN) | 16.77  | 1.56   | .30**  | −.00   | −.27** |
| Categorical Thinking |        |        |        |        |        |
| Isotonic Thinking |        |        |        |        |        |
| Relief in the Unusual (RU) | 11.29  | 4.41   | .06    | .18*   | .08    |
| Formal Superstitious Thinking (PST) | 11.85  | 4.31   | −.04   | .03    | −.04   |
| Native Optimism |        |        |        |        |        |
| Over Optimism (OO) | 14.10  | 3.87   | −.02   | .07    | −.10   |
| Pollyanna-Ish Thinking (FO) | 21.48  | 4.25   | .00    | .10    | −.08   |

Note: TIT = Transformational Total, TT = Transactional Total, LF = Laissez-Faire Leadership, The Constructiveness, Distinct of Others, Intolerance, and Stereotypical Thinking subscales were excluded from further analysis due to a low Cronbach Alpha (α < .55).

N = 126, *p < .05, **p < .01.
global constructive thinking ($\beta = .39, p < .001$) significantly predicted transformational leadership scores, emotional coping ($\beta = .13, p < .09$), behavioral coping ($\beta = .21, p < .007$), rational processing ($\beta = .22, p < .001$), and experiential processing ($\beta = .18, p < .008$) were regressed together on transformational leadership. Thirty-nine percent of the transformational leadership criterion could be explained by combining emotional coping, behavioral coping, experiential processing, and rational processing, while forty-one percent of the transformational leadership criterion could be explained by combining the rational, experiential, and global thinking constructs (see Table 5).

It appears that constructive thinking may moderate the connection between the experiential system and transformational leadership. Specifically, we predicted that experiential processing should predict transformational leadership in cases where leaders display high levels of constructive thinking. By contrast, leaders who rely on their experiential system, but do not use it constructively, would show lower levels of transformational leadership. To facilitate this analysis, both constructive and experiential processing scores were divided into high versus low groups using a median split. We then performed a 2 (constructive thinking: high vs. low) x 2 (experiential processing: high vs. low) factorial ANOVA on transformational leadership scores. Participants with high scores in constructive thinking scored higher in transformational leadership ($M = 71.26, SD = 6.14$) than participants with low scores for constructive thinking ($M = 63.83, SD = 8.25$), $F(1, 142) = 20.19, p < .001$. The main effect of experiential processing was not statistically significant, $F(1, 142) = 3.46, p = .06$. Participants with high experiential processing and low global constructive thinking scores ($M = 66.20, SD = 7.19$) did not score disproportionately lower in transformational leadership, $F(1, 142) = .028$, $p = .876$. A low experiential score did not differentiate between constructive and destructive thinking in relation to transformational leadership. A leader with a high score on emotional and behavioral coping, which are aspects of constructive thinking, was more likely to have a higher transformational score (see Figure 2).

Discussion

Taken together, the results for studies 1 and 2 indicate that the rational system and constructive-thinking aspects of the experiential system were strongly correlated with transformational leadership. Study 1 examined the relationship between information-processing and leadership styles. The rational system shared a positive correlation with transformational leadership and all its subscales. The characteristics of the transformational subscales can be linked to the rational system. For example, idealized influence–attributed to the way leaders energize their followers by viewing the future with optimism and stressing ambitious goals (Aronson et al., 2003). Both idealized influence–attributed and inspirational motivation relate to the analytical, intentional, and effortful aspects of the rational system. Intellectual stimulation refers to the leaders’ actions that appeal to leaders’ followers’ sense of logic and analysis. The characteristics of intellectual stimulation relate well to the rational system, a system that is reason oriented, logical, and attuned to logical connections.

**Figure 2.** Transformational leadership scores for participants high and low in Global Constructive Thinking (GCT) and Experiential information processing.

![Graph showing transformational leadership scores for participants high and low in Global Constructive Thinking (GCT) and Experiential information processing.](image)

**Table 5. Summary of Regression Analysis for Variables Predicting Transformational Leadership**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Adjusted R Square</th>
<th>$\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional Coping</td>
<td>.318</td>
<td>.125</td>
</tr>
<tr>
<td>Behavioral Coping</td>
<td>.212</td>
<td>.212</td>
</tr>
<tr>
<td>Rational Total</td>
<td>.312</td>
<td>.421</td>
</tr>
<tr>
<td>Experiential Total</td>
<td>.031</td>
<td>.176</td>
</tr>
</tbody>
</table>

Note. N = 126; Men, n = 76; Women, n = 71.
(Epstein, 1998b). The results of Study 1 supported the initial hypothesis. The rational system did show a strong relationship; however, a weak relationship was found between the experiential system and transformational leadership.

According to CEST, conscious thought and behavior are joint functions of the rational and experiential systems with the balance tipping in the direction of the rational system with age and training. The shift from one system to the other is also contingent on the situation and person (Epstein & Pacini, 1999). The strength of the rational system’s connection with transformational leadership found in Study 1 may, in part, be explained by the age of the sample (M = 50 years). However, it would be inappropriate to overlook the contribution of the experiential system, as both systems interact and work in parallel. Even though the experiential system relies on personal experience, the articulation and logical analysis of the rational system is critical (Epstein, 2003). When it comes to transformational leadership, it appears that both systems can make an important contribution.

From an evolutionary perspective, emotions have guided human survival; however, the rational system is a relative newcomer, one that has yet to establish itself (Epstein, 2003). The present dilemma for leadership is to learn how the preconscious experiential system influences the leader’s behavior and how it integrates with the conscious rational system. Whereas the experiential system is associated with a number of positive (constructive) attributes such as creativity and compassion, it can also be a source of difficulty when it engages in superstitious thinking, prejudice, and biasing the rational system to a point where people are unable to think rationally (Epstein, 2003). The negative (destructive) attributes of the experiential system may, in part, explain its weak relationship with transformational leadership in Study 1.

Study 2 confirmed the strength of the relationship between the rational system and transformational leadership. Moreover, it demonstrated a strong positive relationship between the constructive aspects of the experiential system and transformational leadership. Global constructive thinking, emotional coping, and behavioral coping, and their respective subscales were all positively correlated with transformational leadership; therefore, the second set of hypotheses was supported.

The Arwater and Yammarino (1993) and Dubinsky et al. (1994) studies found only one positive correlation between behavioral coping and transformational leadership. This outcome may have been different if these researchers had used experienced leaders. The present research extends their work by initially examining the full aspects of the rational and experiential systems with the FRLT (Bass, 1985), and by making use of all CTI scales, including the two lie scales, and by studying experienced, well-established leaders. The present research supports Arwater and Yammarino’s and Dubinsky et al.’s findings, but also suggests that transformational leadership is related to the rational system, global constructive thinking, emotional coping, and their respective subscales.

With the exception of Idealized Influence–Attributed, transformational leadership focuses on the behaviors of the leader (Elliott, 2004). The results of this study suggest that a transformational leader in an educational setting is likely to be a flexible thinker who can adjust their behavior to meet the needs of a different situation (which corresponds with global constructive thinking), and view potentially stressful situations as challenges rather than as threats (which corresponds with emotional coping; Epstein, 2001). The subscales of emotional coping suggest that the leader would operate with high self-esteem and hold a generally favorable view of themselves (self-acceptance), avoid overestimating the generality of unfavorable experiences (absence of negative overgeneralization), be resilient and able to tolerate uncertainty (unsensitivity), and avoid obsessing over negative events (absence of dwelling).

This type of leader is also likely to think in ways that facilitate effective action (which corresponds with behavioral coping). The subscales of behavioral coping suggest that the leader would tend to emphasize the positive side of situations and to think in a manner that makes unpleasant tasks minimally distressing (positive thinking), take effective action when faced with problems (action orientation), and engage in planning and careful thought (conscientiousness; Epstein, 2001). Given that the experiential system is associated with affect (Epstein et al., 1996), it seems plausible to associate positive thinking, a subscale of behavioral coping, with positive emotions. The recently developed broaden-and-build theory suggests that positive emotions can serve the purpose of broadening leaders’ momentary thought-action repertoires and help build enduring personal resources (Fredrickson, 2006). For example, employees working with supervisors who are high on transformational leadership experience more positive emotions throughout the workday, including during interactions with coworkers and customers (Bono et al., 2007). This appears to
complement our finding of a connection between positive thinking and transformational leadership.

Limitations and Future Directions

In Australia, the school system includes two types of schools: public (government) and independent (Barnett & McCormick, 2004). Principals of independent schools have substantial autonomy in their ability to run a school, much like CEOs who are answerable to a board of directors. The strength of both studies is that a sample of autonomous independent school principals was used; however, it is acknowledged that the results are derived only from educational leaders in Australian independent schools, and caution should be exercised in applying these results to other leadership settings.

Study 1 used self-report measures, which can be limited by socially desirable responding. Given that the respondents in both studies were not engaged in high stakes scoring, there is less likelihood that socially desirable responding would have led to common method variance and inflation of correlations between the self-report measures (Chan, 2007). Study 2 further addressed the limitation of socially desirable responding by using the two built-in lie scales of the CTI. Study 2 replicated study 1 by confirming the relationship between the rational system and transformational leadership while omitting participants who showed a tendency toward socially desirable responding.

An additional limitation is the correlational design of the two studies. Correlational research does not show directly whether information processing causes changes in leadership style. As such, an intervention study could confirm if changes could be achieved by providing real-life corrective experiences in an attempt to develop transformational leadership further by altering the constructive aspects of the experiential system.

Conclusion

This research found that principals who rated themselves as transformational leaders obtained high mean scores on the rational system and the constructive factors of the experiential system. High levels of rational thinking, global constructive thinking, emotional coping, and behavioral coping appear to be important antecedents to transformational leadership.

An understanding of the internal cognitive processes that contribute to transformational leadership has the potential to affect the quality of life of both leaders and followers (Epstein, 1998b). Understanding how educational leaders exercise effective leadership, while coping with increasing workloads and looking after their personal well-being is an important area of research (Sibbick & Muller, 2004). This research has moved one step closer to understanding the interactive nature of the rational and experiential systems in relation to transformational leadership. Future studies could evaluate whether variables with strong relationships found in this research have predictive value in other leadership settings.

References


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