Positive Behaviour for Learning: Investigating the transfer of a United States system into the New South Wales Department of Education and Training Western Sydney Region schools

REPORT

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Western Sydney Region schools

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Executive Summary

Positive Behaviour for Learning (PBL) is an initiative of the NSW Department of Education and Training Western Sydney Region (DET WSR) that has been progressively introduced into schools across the region from 2005. As PBL has been derived from the Positive Behaviour Interventions and Supports (PBIS) program developed in the United States, the central questions for the present investigation were how the cultural transfer of the United States model has resulted in implementations with local features and the extent to which the Australian PBL model has been successful in promoting positive student behaviour and in facilitating learning outcomes.

As the name of PBL in the Australian model suggests, there was an extension in the Australian approach to an emphasis on positive learning outcomes as a result of positive behaviour enhancement. There was therefore a need to examine the extent to which the PBL model has been successful in promoting positive student learning outcomes. The investigation involved the collaboration between the University of Western Sydney (UWS) and DET WSR. The value of this research partnership project is that it responds to the PBL initiative of the DET WSR which began in 2005 and is part of their Strategic Plan until 2009. Findings will not only inform better practice in translating school-wide improvements in student behaviour into sustainable educational outcomes through a systemic approach in and beyond WSR, but will also contribute to the literature of positive behaviour intervention and supports internationally.

The research project applied a mixed-methods approach that involved the analysis of data collected by DET WSR at regular intervals using the School-wide Evaluation Tool (SET), fieldwork data obtained from observations together with focus group discussions and individual interviews of students, parents, teachers, coaches and various levels of personnel involved in the PBL implementation together with research artefacts such as regional documents and conference presentations, and survey data from students, parents, and teachers. Parallel data were also obtained from schools that had not implemented PBL.

The research questions of the investigation were:

RQ 1. How have schools implemented PBL? Which processes have schools found effective for their different contexts?

RQ 2. What effects are evident from students’ behaviour, motivation, self-concept, and learning?

RQ 3. How does the implementation of PBL impact on the attitudes of school staff, students, and parents to learning and behaviour?

RQ 4. What changes are made to the PBIS model at a school and regional level as part of implementing PBL? For what reasons and to what effect?

Findings of the research are as follows:

For RQ 1, there were three common features and three differences across the three fieldwork schools as they implemented PBL. The common features were (a) consistency, (b) local examples in the training, and (c) the critical interaction of coaches and PBL teams. The differences were (a) involvement of students in decision making, (b) clustering between primary and high schools, and (c) staff ownership of the process. These findings suggest that for success of implementation and sustainability of outcomes, PBL should
continue to maintain the established consistency, especially with regard to language and expectations, rely on collaborative leadership models, include local examples in the training, and maximise the interaction of coaches and school PBL teams especially in collecting and maintaining data that provide an evidence base for monitoring behavioural changes. For better results in various schools with different contexts, the PBL school teams could consider involving students in some decision making processes, and continuing the strategic clustering between primary and high schools for efficiency, and encouraging a sense of school staff ownership of the PBL process.

For RQ 2, the School-wide Evaluation Tool (SET) data found significant improvement in school-wide implementation of PBL measured by seven indicators. Noteworthy increases in overall scores over time were found in the primary schools from 59.77% to 91.26%. For the high schools, the overall SET score improved from 67.66% to 84.41%.

Survey data obtained from teachers did not find significant differences between experimental (PBL Schools) and control groups (Non-PBL Schools). Both groups of teachers had high self-esteem and high emotional stability ($M > 4.5$ on a 6-point scale), and very high instruction and management efficacy ($M > 5$). Future research might consider the use of more contextually specific instruments to measure teacher self-concept and self-efficacy in relation to PBL implementation over time.

Students’ satisfaction ratings were clearly higher for Phase 1 schools (> 70%) than for the other phases (< 45%). This suggests a relationship between time in implementation and impact, indicating room for improvement for those schools at the initial stages of implementation. There was some evidence of success in the cultural transfer of the PBIS to the PBL model that attempts to further translate positive behaviours to positive learning outcomes such as self-concept and achievement motivation. These findings suggest that further research would continue to assess the effects of PBL on student learning.

Student survey data showed that the experimental group tended to have higher scores for all 5 self-concepts measured: school competency, school affect, mathematics, English, and parent self-concepts, although statistically significant differences were found only in school competency, mathematics self-concept, and parent self-concept. The experimental group also had significantly higher motivation orientations including: Belief, Value, Planning, Management and Persistence and significantly lower scores for Disengagement. Using satisfaction ratings as a general indicator of the output quality of PBL, the analysis showed high satisfaction rates for both parents and teachers (both > the 70% target for all phases).

For RQ 3, fieldwork data and surveys found that the implementation of PBL tended to change the attitudes of some teachers from individual efforts of behavioural management to a systemic, school-wide approach. The staff in the school and some parents have changed to a more positive attitude towards the strategies of promoting students’ desirable behaviours. To a certain extent, there were also perceptions of improved academic behaviours in the students. PBL was shown to influence student attitudes in relation to the school’s expectations.

For RQ 4, it was found that the renaming of PBIS as PBL and its attendant emphasis on students’ academic learning was more significant than was initially thought. Contextualising PBL in DET WSR schools was found to be important for success whilst maintaining the integrity of the PBIS model. Some schools were integrating the learning characteristic of the NSW Quality Teaching model with the behaviour characteristic of PBIS. This was important for coherence with existing initiatives and for maintaining a student-centred focus. Accordingly, there seems to be evidence that Quality Teaching and PBL work together well to achieve both positive behaviour and academic outcomes.
It is clear from the study that the introduction of PBL has made significant positive changes to the capacity of DET schools in WSR to respond effectively to students’ behaviour. It has provided a systemic framework that has enabled schools to track their management of student behaviour and has enabled schools to develop coherent whole-school practices that enhance teaching practices and support positive behaviour.

On the basis of the present findings, further research will be conducted to tease out the differential effects of the range of variables that may have contributed to the present findings. Based on these preliminary findings, it will be helpful to modify the research design to include, for the quantitative component, better student behaviour outcome measures and longitudinal analysis of multiple sources of data from experimental and control groups. A larger study with increased sample sizes of both schools and students will enhance the power and accuracy of these statistical analyses.

In addition, extending the fieldwork component of the research to conduct in-depth evaluation of PBL implementation at further schools will be important for clarifying the school-based elements of implementation that support PBL effectiveness. This will be especially valuable for refining the integration of learning into the PBL model and enhancing the local model accordingly.

Funding will be sought from nationally competitive sources such as the Australian Research Council Industry Linkage projects scheme to support a continuing, large-scale investigation of how the model of positive behaviour intervention is being adapted for use in the Western Sydney Region and to make comparisons with its implementation in other Australian settings. As local adaptation of the PBL proceeds it is important to support its development with a comprehensive research framework. The next stage of the research would extend from these preliminary findings to further develop and test such a framework.
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Chapter 1
Overview of the project

1.1 The partnership program

The research project described in this report was undertaken as a partnership between the University of Western Sydney (UWS) and the Department of Education and Training Western Sydney Region (DET WSR). This collaboration was developed as part of the UWS School of Education regional engagement initiative. Joint meetings held between representatives of UWS School of Education and DET WSR during 2006 established that UWS could provide valuable research expertise to assist with investigating the implementation and impacts of DET WSR’s Positive Behaviour for Learning (PBL) initiative, being progressively introduced into schools across the region from 2005. As PBL has been derived from the Positive Behaviour Interventions and Supports (PBIS) initiative developed for United States (US) schools, the central questions for the investigation revolved around the processes entailed in cultural transfer of a US model to schools in the Western Sydney Region.

Working collaboratively, we determined that the research should focus not simply on whether PBL is achieving its intended outcomes, but on how it is adapted for Western Sydney Region schools, on cultural and contextual factors that might enable or impede its implementation, and on the nature of both expected and unexpected effects. In addition to the specific focus on PBL, the research partnership was intended to develop the partners’ research capacity and build links between UWS and DET WSR. This aim was consistent with DET WSR’s emphasis on connectedness, collaboration and collegiality. It has been sustained through shared management of the project, through collaborative analysis of its findings, and through joint development of this research report.

1.2 Background

Student behaviour and its implications for learning are a frequent concern of teachers, parents and policy makers in Australia and elsewhere. Disruptive student behaviour not only impedes learning outcomes for students but also impacts negatively on teacher efficacy and wellbeing (Tschannen-Moran & Woolfolk Hoy, 2001; Lewis, 1999). Teachers who feel overwhelmed and undermined by poor student behaviour, low student engagement and motivation are less effective in the classroom. These teachers experience less satisfaction and are more likely to resign their positions, leading to an exacerbation of poor educational outcomes and associated behavioural problems and contributing to the problem of ‘hard-to-staff’ schools (Howard & Johnson, 2002). A recent study of primary teachers in Western Sydney found that even teachers who felt confident about their teaching abilities expressed concern about student disobedience, distractability and disruption of others, as well as less frequent but more challenging behaviours such as physical aggression and bullying (Stephenson, Linfoot & Martin, 2000). Focus group discussions conducted by DET WSR in 2004 revealed widespread dissatisfaction with the ways that behaviour problems in schools were being dealt with.

In NSW the DET recently revised its discipline policy guidelines to emphasise that ‘quality learning environments’ should provide ‘an environment free from disruption, intimidation, harassment and discrimination. To achieve this, all schools are expected to maintain high standards of discipline’ (NSW DET, 2006a). It was apparent that the
challenge to manage problems at the school level had frequently led to an escalation of conflict. This is consistent with research findings that show that coercive discipline aggravates problem behaviour (Lewis, 2001).

Further, DET WSR has noted disparities across the region in the capacities of different schools to deal effectively with student behaviours. Consequently, DET WSR has highlighted the need for schools and teachers to employ more effective behaviour management programs and emphasised the adoption of a consistent region-wide professional development program for behaviour management (NSW DET, 2006b).

As noted by Porter (2000) and Edwards and Watts (2004), the range of existing approaches to dealing with student behaviour can be differentiated in terms of their relative emphases on teacher control or student autonomy. Many Australian schools have adopted approaches that seek to balance these two dimensions by applying behavioural principles while emphasising the need to establish and maintain strong relationships with students and build student responsibility for their own behaviour. The models proposed by William Glasser (1992) and Bill Rogers (1998) both exemplify this dual focus, perhaps accounting for their popularity with school educators.

However, despite the recent emphasis given by both these theorists to adopting a consistent school-wide model, application of their approaches in schools, had been patchy. For example, the Glasser model (1992), which advocates that students take responsibility for making their own behavioural choices, is frequently wrongly invoked by teachers as a means of threatening students to choose between two aversive teacher-imposed ‘choices’. Gail Wykes, a senior member of the DET WSR team, observed that the Glasser model is often misunderstood or misused. She also reported that Bill Rogers’ staff development sessions, though popular, had not eventuated in lasting positive change. Research on classroom management across Australia has found that teachers frequently revert to coercive and ineffective forms of discipline when they are challenged with difficult behaviour (Lewis, 1997). Consequently, the establishment of workable, positive and sustainable processes for dealing productively with student behaviour issues remains an educational challenge for this region and others.

1.3 The DET WSR model of PBL

In May 2004 George Sugai from the University of Oregon was in Australia for an Australian Association of Special Education (AASE) Conference related to the Positive Behaviour Support model. Its adaptability and whole school focus impressed DET WSR personnel, and in 2005 Tim Lewis from the University of Missouri was invited to introduce the model to school Principals from across the region. The renaming of PBIS to PBL by the WSR Leadership Team occurred after the first group of 13 schools participated in the first PBL training conference. WSR’s uptake as PBL reflects the regional priority on improving student learning outcomes. It was decided to adopt the model progressively for government schools across the region.

The emphasis on positive behaviour in the original PBIS approach is consistent with established, evidence-based methods of behaviour management that aim to teach and reinforce identified target behaviours and minimise the use of punishment (Sulzer-Azaroff & Mayer, 1994). “Teaching behavioral expectations and rewarding students for following them is a much more positive approach than waiting for misbehavior to occur before responding. The purpose of school-wide PBIS is to establish a climate in which appropriate behavior is the norm” (OSEP Center on PBIS, 2006). Thus, the PBIS model encourages schools to use data to inform the adoption of systems and practices that apply sound behavioural principles in their approach to managing student behaviour. It aims to
equip schools to identify and teach behaviours that they have determined are appropriate for their students.

A noteworthy feature of the PBIS model is its systemic focus. This was explicit in the design of PBIS from its genesis, where the aim was to develop a means of changing school-wide discipline practices so as to achieve better support and reduce the risk for children with special education needs placed in mainstream settings (interview with Tim Lewis, 9/10/07). PBIS emphasises the need for schools to comprehensively monitor student behaviour as a basis for developing and applying school-wide and teacher-initiated behaviour management strategies. Furthermore, to address issues of sustainability, the PBIS model promotes an explicit, structured, team-based, problem solving process for developing schools’ capacities to assess and address behaviour issues (OSEP Center on PBIS, 2004).

As shown below (OSEP Center on PBIS, 2004) in Figure 1.1, the PBIS process is conceptualised in terms of four key interrelated elements within the circle that will impact on features external to the circle. These are:

- Practices – research-based practices for supporting positive student behaviours
- Data – collecting and analysing data as the basis for decision-making
- Systemic focus – supporting system-wide change in staff behaviour
- Outcomes – academic and social results

As with other behavioural programs, the central emphasis in PBIS/PBL is on gathering observational data and on evaluating specific outcomes on the basis of the data collected (Newcomer, 2005). Behaviourist methodologies have long stressed this empirical approach, involving comprehensive and specific data collection and explicit specification of target behaviours, as vital to effecting positive behaviour change (Sulzer-Azaroff &
Mayer, 1994). A clear advantage of this in the school context is its capacity to challenge perceptions based on prior assumptions that are often inaccurate or unhelpful. Teacher (mis)judgments and false assumptions are more easily debunked when behaviours are analysed in terms of what, actually, has occurred, in what circumstances and to what effect.

The PBIS (and hence PBL) model extends the use of behavioural data to focus on observing patterns of behaviour in a range of school settings, for example, school-wide (school expectations for all), non-classroom (routines, procedures, playground, hallway assemblies, cafeteria), classroom (classroom management systems and learning environment and pedagogy) and individual (small proportion of the student population whose behaviours have a disproportionately high impact on school-wide, non-classroom and classroom systems) (Lewis & Sugai, 1999). These data are analysed by a team of school staff and are used to inform decisions as to whether changes need to be made to systems and/or practices. The aim is to make the smallest change that has the biggest impact. The team uses data to determine which behaviours need to be taught to students and which settings or locations need to be monitored for improvements (Todd, Horner, Sugai & Sprague, 1999; Lewis-Palmer, Sugai & Larson, 1999). Staff are involved in developing a matrix of up to five key behavioural expectations to be taught systematically to all students, with an emphasis on behaviours indicated for specific settings. This forms the basis of a universal-level intervention to prevention of problem behaviours, referred to in PBIS literature as universal prevention, which targets all students and staff in a school (OSEP, 2004). As shown in the diagram below, the PBIS model acknowledges that universal prevention needs to be supplemented for approximately 20% of students by more specialised targeted interventions at targeted group interventions (5-15%) and intensive individual intervention levels (1-5%).

![Figure 1.2: Three-tiered continuum of Positive Behaviour Support (OSEP, 2004:17)](image)

From its original emphasis in the US on supporting students with special education needs, PBIS has been extended for implementation at the regional and state level. Current literature in the field has indicated that approaches such as PBIS have positive influences on behaviour, classroom and school environment and importantly, student outcomes (Nelson, Martella & Marchand-Martella, 2002). In the US, PBIS is supported by eight
universities and four educational agencies, and has been used in over 30 states ([www.pbis.org/files/brochure.pdf](http://www.pbis.org/files/brochure.pdf)). There has also been considerable interest in Australia, with versions of the PBIS model being taken up in Queensland, Victoria, Tasmania and Western Australia in addition to NSW.

DET WSR has emphasised the importance of a strategic and comprehensive process that maintains fidelity to the *PBIS School-wide Implementers Blueprint* (OSEP, 2004) by systematically establishing a school-wide universal prevention focus. WSR has adopted the following organisational model for the region-wide implementation of PBL.

The Region has established a parallel organisational system to what is expected in schools, particularly in relation to training and coaching. Training of school teams and coaches in line with the *Blueprint* (OSEP, 2004) has been led by the PBL coordinator and officer. Tim Lewis supported the Region’s initial training and helped build capacity to adapt it to suit the local context. An important part of training, particularly in relation to the school-wide component, is emphasising PBL as an umbrella process for a broad range of programs in schools, including but not exclusive to values education, anti-bullying, learning support teams, PAS and PSP programs.

The region considers the role of coaches in supporting school teams as critical to the implementation of PBL. Eighty-eight school-based and region-based coaches have volunteered across WSR since 2005. Coaches provide a localised connection between the schools and the Region. Staffing the coach positions in the growing number of schools taking up PBL is a key issue of sustainability for the Region.
DET WSR has been particularly enthusiastic about the use of data-based decision-making processes to guide school practices as well as regional initiatives. To support the data aspect of this approach is the US developed School-wide Information System (SWIS).

The DET WSR’s goals for adopting PBL as outlined in the DET WSR business plan (NSW DET, 2006b) included:

- Increasing awareness and understanding of effective schools practices;
- Increasing and improving the use of team processes in educational decision making;
- Increasing awareness regarding the value and use of data-based decision-making in education;
- Establishing proactive support systems that use evidence based practices which promote the use of research-based strategies to address universal (school wide, non-classroom and classroom), targeted group and intensive individual interventions; and
- Supporting community processes that foster the belief that educating our students is a shared responsibility

DET WSR has accordingly committed to offering PBL to all schools in the region, rolling it out initially between 2005 and 2009, and providing for its ongoing sustainability through to 2009 and beyond. Following a regional briefing that occurred in August 2005, 51 schools applied to be involved in PBL. The Region committed to providing PBL training to every school that applied and these 51 schools formed the composition of the first three phases of schools.

The level of support offered by the Regional Leadership team has been welcomed by schools with more than 111 (46%) schools responding with expressions of interest since the prospect for them to participate in PBL was raised at the regional level in August 2005.

For school leadership, PBL has shown benefits for engaging staff as a whole, evaluating current practice and deciding on positive interventions. For example, one Principal participant in the Regional PBL Leadership Team stressed the positive effects of his staff learning and implementing better behaviour management alternatives as a result of PBL without having to be singled out for individual criticism.

The DET WSR’s approach to PBL has been acknowledged by other regions in NSW and at the state level. DET WSR staff members have been involved in assisting other regions to plan to sustainability implement the PBL initiative and discussions are under way regarding the prospect of establishing a state-wide leadership team to support regional implementation. Through WSR, eight NSW DET regions have agreed to adopt a partnerships approach to establishing the state-wide team that will support implementation of PBL with the integrity and fidelity across NSW.

1.4 Focus of the research

This collaborative research project was initiated in June 2006 by the Committee of Cooperation between DET WSR and the School of Education at UWS. Emerging from further meetings between members of the School of Education and the PBL regional leadership team was a research partnership focused on the introduction of PBL. Given the commitment of DET WSR to PBL it was essential to establish research protocols for evaluating its effects, both intended and unintended, as well as the broader implications of adopting this model for schools in the region.
Members of the regional PBL Leadership Team indicated four broad dimensions of PBL implementation that they were interested in researching. These included fidelity of PBL implementation, impact at the school level, effectiveness at the regional level, and implications for the future. At this initial stage of PBL implementation in WSR the current research is focussed primarily on school and regional dimensions of the initiative. Through this investigation the research team aimed at establishing a basis for further significant longitudinal research that would be eligible for Australian Research Council (ARC) funding.
Chapter 2
Purpose of the study

2.1 Key dimensions – US to Australian contextualisation
The change of nomenclature to PBL was critically important for the adoption of the PBIS model within the Western Sydney Region (WSR). In interview, members of the Regional Leadership Team commented that “Changing the name to PBL was critical and symbolised contextualisation,” and that “the purpose of the name change was to want schools to own it, to take it on.” “Its credibility was the notion ‘this is not a panacea for behaviour’; this will support ‘fabulous learning’ in schools.” The Team, though impressed by the PBIS model, recognised that its emphasis on behaviour support needed to include overt emphasis on learning to appeal to WSR schools. This changed emphasis of implementing PBL in WSR, and how it impacted on the cultural transfer of the PBIS model to WSR, were deemed to be of central significance to the research focus.

As indicated in the preceding chapter, PBIS had its origins in the field of developmental disabilities (Carr, Dunlap, Horner, Koegel, Turnbull, Sailor, Anderson, Albin, Koegel & Fox, 2002). This especially accounts for its emphasis on behaviour support. Carr et al. associate ‘positive behaviour’ with ‘success and personal satisfaction’ (2002, p.4), and ‘support’ with educational strategies and methods of systems change that enhance positive behaviour. PBIS synthesises the theoretical and empirical approach of applied behaviour analysis with a data-based approach to systems analysis and change. The model has been refined to yield the following seven key dimensions associated with PBIS implementation across the whole school (Table 2.1) (Horner, Todd, Lewis-Palmer, Irvin, Sugai & Boland, 2004).

Table 2.1: Seven key features of school-wide Positive Behaviour Support

<table>
<thead>
<tr>
<th>School-Wide Positive Behaviour Support Practices and Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Define 3 to 5 school-wide expectations for appropriate behaviour.</td>
</tr>
<tr>
<td>2. Actively teach the school-wide behavioural expectations to all students.</td>
</tr>
<tr>
<td>3. Monitor and acknowledge students for engaging in behavioural expectations.</td>
</tr>
<tr>
<td>5. Gather and use information about student behaviour to evaluate and guide decision-making.</td>
</tr>
<tr>
<td>6. Obtain leadership of school-wide practices from a administrator (Principal) who:</td>
</tr>
<tr>
<td>a. establishes a team to develop, implement, and manage the school-wide behaviour support effort in a school;</td>
</tr>
<tr>
<td>b. serves as a member of the team;</td>
</tr>
<tr>
<td>c. allocates sufficient time to implement behaviour support procedures; and</td>
</tr>
<tr>
<td>d. allocates school-wide behaviour as one of the top three improvement goals for the school.</td>
</tr>
<tr>
<td>7. Obtain district (region) level support in the form of:</td>
</tr>
<tr>
<td>a. training in school-wide behaviour support practices,</td>
</tr>
<tr>
<td>b. policies emphasising the expectations that schools are safe and organised for effective learning, and</td>
</tr>
<tr>
<td>c. expectation that information on problem behaviour patterns be gathered and reported.</td>
</tr>
</tbody>
</table>
As outlined here, the emphasis on behaviour and promoting a culture of positive discipline is very prominent. This emphasis is frequently raised by US-based PBIS advocates to argue for the implementation of PBIS across a spectrum of school settings as a means of addressing the high incidence of extreme behaviours in US schools. Lewis, Powers, Kelk & Newcomer (2002), for example, quote US Department of Education figures that indicated a rate of 10% for schools experiencing violent crime in a one year period and 57% for schools reporting incidents of violence that required police involvement. In Australia, by comparison, these kinds of extremes are relatively rare (Gonczi & Riordan, 2002). For example, in NSW schools in 2001 long suspensions for violence or for possession of a prohibited weapon averaged approximately 1.6 incidents per school per year, with many schools having no incidents at all. Despite recent modest increases in student misbehaviour and in concern expressed among teachers and principals, this relatively low level of serious incidents is illustrative of the differences between the Australian and US educational contexts. In WSR, which reports considerable variation across the region in schools’ use of suspensions, long suspensions account for only 20% of all suspensions of which extreme violence is minimal (<1% of all suspensions). Among primary schools, there has been no obvious impact on suspension usage due to PBL. In both PBL and non-PBL schools there have been increases in short and long suspension rates. However, in the first two groups of high schools implementing PBL, long suspensions rates (i.e. number of suspensions expressed as a rate per 1,000 enrolments) have decreased by 26% (from a rate of 60 to a rate of 45) over the period 2005-2007. In contrast, an increase in long suspensions rates of 34% has occurred in non-PBL high schools (from a rate of 14 to a rate of 19).

In terms of the association between PBIS and learning, improvements in student academic achievement have been reported in association with PBIS implementation. These are assumed to result from decreased classroom disruption that flows into increased learning time (Luiselli, Putnam, Handler & Feinberg, 2005; Lassen, Steele & Sailor, 2006). It should be noted, however, that improved academic learning outcomes are an indirect effect of PBIS and may be attributable to a range of factors, as emphasised also by Lassen et al., who suggest that instructional strategies, student motivation and test-taking skills all play a part in academic performance on standardised tests.

These considerations illustrate that the renaming of PBIS as PBL in WSR carries implications beyond a mere change of title. Although behavioural issues clearly remain an important focus in the PBL initiative (Sugai, 2007), its framing indicates a shift in intent to reinforce the place of learning as paramount. This intent is reflected also in the ‘relentless focus on learning’ that forms the core of DET WSR’s strategic plan 2006-2008, stressing a commitment to continuous improvement in the quality and effectiveness of students’ learning and development.

Significantly, the emphasis on positive behaviour for learning, was initiated by the Regional Director and followed-up by the Regional Leadership Team who initiated a naming competition with the first group of schools training in PBIS. For one of these schools in particular, the learning emphasis was very clear. Children’s learning was a central priority at their school, but staff recognised that their model of student welfare did not match their teaching and learning focus. Taking on PBL was a way for them to link their efforts with student learning to a complementary approach to discipline and welfare. This orientation was clearly shared by a number of other schools within the region.

This regard for learning builds on the NSW DET’s Quality Teaching framework (2003). Deriving from work in Queensland on theorising Productive Pedagogies (QSRLS, 2001), the framework is concerned with pedagogy that improves students’ outcomes. The
The Quality Teaching framework helps to build quality teaching practice across the dimensions of **Intellectual quality**, **Quality learning environment** and **Significance**. The Quality Teaching framework sets out to build teachers’ own professional reflection on pedagogy and has come to inform many aspects of classroom practice and student support that relate to student behaviour and engagement. In particular, a focus on the dimension of **Quality learning environment** supports this through the elements of **Explicit quality criteria**, **Engagement**, **High expectations**, **Social support**, **Student self-regulation** and **Student direction** and through the elements of **Significance** especially **Cultural knowledge** and **Connectedness**.

Western Sydney Region has ‘a relentless focus on learning’ and, as the NSW Quality Teaching model is based on “sound research understanding of how teaching and school improvement can promote improved learning outcomes” (DET, 2003), the integration of Quality Teaching into all classrooms across the region has been a regional priority. The elements of this model can be applied across all years of schooling, K-12, and all curriculum areas. Regional consultants work with teachers using the QT model as the pedagogical framework through which to deliver on syllabus outcomes and content. They model quality practice in the unit, lesson and assessment planning process as well as during team teaching sessions.

The following information about PBL, provided at one school’s Parents and Citizens meeting, shows the influence of Quality Teaching on expectations for PBL.

Positive Behaviour for Learning (PBL) refers to a system of school-wide processes and individualised instruction designed to prevent and decrease problem behaviour and to maintain appropriate behaviour. The process facilitates the development of quality learning environments, in which all students feel safe, secure and can flourish as individuals.

The Western Sydney Regional Director’s view also records the fundamental link assumed between PBL and quality teaching and learning.

PBL is thus seen at the regional level in the context of DET WSR’s wider corporate vision, described as follows:

By 2010 Western Sydney Region will be widely recognised as the state and national leader in:

- continuous improvement in learning performance for all students
- excellence in student outcomes
- student centred, personalised learning culture and practice
- capacity building of staff
- connectedness between schools, region and the wider community
- provision of highest quality support to schools
- community confidence in our schools.

Significantly, recent PBIS literature suggests the limitations of behaviour support alone. In reviewing the PBIS model Sugai (2007) has highlighted that the need for behaviour support is only one element required for student success. An equally critical element is learning support. While teaching and learning strategies are thus seen as both a necessary and complementary focus for enhancing student success, these are not elaborated as part
of the PBIS model itself. WSR has embarked on a long term commitment to supporting schools to take up the PBIS process and is establishing processes to evaluate the long term impact of PBL on student academic achievement, which cannot be expected to present in the short term. It remains to be seen how the strong emphasis on learning in the Western Sydney Region influences the approach taken to PBL in schools and conversely how the emphasis on behaviour in the PBIS model impacts on regional and local objectives for learning.

2.2 Purpose

The major purpose of the research is to investigate the implementation of PBL in Western Sydney Region by considering the ways in which it has been adapted for use in the Western Sydney context and by gauging its effectiveness as a process for enhancing learning.

Direct assessment using quantitative means of the fidelity of implementation according to the PBIS model already occurs as part of the implementation process. While taking account of the results of PBL implementation evaluation, the current research looks beyond fidelity of the PBIS model to consider the effects of PBL on schools and students in WSR as well as the effects of the WSR implementation of PBL on the PBIS model.

To assess the effects of PBL on learning it is important to look beyond the implementation data to consider changes in student behaviour and improvements in student motivation to learn and self-concept. Positive effects on teachers’ learning may also be expected. Student, teacher and parental attitudes were monitored and assessed to evaluate the success of PBL in terms of these outcomes.

The research considered what changes to the PBIS model had been made as part of implementing PBL, for what reasons and to what effects. The interrelationships between PBL and existing policy and practical initiatives were considered – also in particular ways that PBL might interface with the Quality Teaching model adopted by NSW schools (Fields, 2004). In essence, we tracked what happened within schools when teams discussed and implemented the PBL process and how they adapted it for local circumstances. We explored how schools made adjustments/allowances, if any, for students of different cultural backgrounds. We investigated how the notion of ‘shared responsibility’ between schools and communities was enacted and the role that students and families had in developing school behaviour priorities and practices.

2.3 Research questions

Our PBL study responded to the following research questions:
1. How have schools implemented PBL? Which processes have schools found effective for their different contexts?
2. What effects are evident from students’ behaviour, motivation, self-concept, and learning?
3. How does the implementation of PBL impact on the attitudes of school staff, students, and parents to learning and behaviour?
4. What changes are made to the PBIS model at a school and regional level as part of implementing PBL? For what reasons and to what effect?
Chapter 3
Research methods

3.1 Introduction

Instigated in response to inquiries by the Western Sydney Region (WSR) Positive Behaviour for Learning (PBL) Leadership Team about investigating their implementation of PBL, the research adopted and maintained a collaborative approach throughout. The PBL process is premised on collecting and analysing data about student behaviour at both school and regional levels. However, WSR sought a broader contextual understanding of the ways that PBL actions are used to activate school change in WSR schools.

Emerging from discussions about enhancing the capacity of DET WSR to develop and deliver a ‘best practice’ model for enhancing school behaviour and learning, a case study design that incorporated a mix of survey and fieldwork methods were selected. The case study design allowed the researchers to investigate multiple specific dimensions of the project, namely its context, its outcomes and its implementation. As a multi-perspective research methodology (Stake, 2005), case study enabled both broad-scale assessment of measurable effects together with more detailed in-depth analysis of specific benefits and challenges encountered in particular school contexts.

Our approach involved the participation of school staff, students and their parents as well as that of the PBL school coaches and the Regional DET PBL Leadership Team. The DET WSR, the primary stakeholder and partner, was represented in the research team by three WSR staff and members of the Regional PBL Leadership Team. They were Jill Schofield, PBL Coordinator, Anne Denham PBL Officer and Gerry McCloughan, School Development Officer. We consulted with the Regional PBL Leadership Team, chaired by the Regional Director, Lindsay Wasson, to identify relevant data sources, recruit participants and identify issues related to cultural, economic or other variables.

3.2 Participants

The UWS researchers worked closely with the WSR partners to determine the most appropriate selection of schools to include in the study and of year levels at which to target students. Selection of participants was therefore purposive, inasmuch as we selected for comparison schools in different phases of PBL implementation. We also chose to focus on students at specific year levels where data on academic performance would be available through state-wide literacy and numeracy results. Having selected the school categories for inclusion, random sampling was employed to select the schools to be approached in each category. Such random purposive sampling is a common feature in qualitative research. The value of random purposive sampling is that it ‘adds credibility to the sample when the potential purposeful sample is too large’ (Miles & Huberman 1994, p.28).

The sampling frame (Burns 1994) of the research thus consists of randomly selected schools in Phases one, three and four of PBL implementation, a randomly selected control group, students from these schools in Years 3, 5, and 7 for whom data is available from state-wide literacy and numeracy tests, and students from these same schools in Years 9 and 11. Phase 1 schools invited to participate in the research belonged to the first group of schools trained in PBL (November 2005) who had been implementing PBL for 18 months. WSR instituted a staged introduction of PBL across the region. Phase 3
schools, comprising schools from the third group to be trained in PBL, were also invited as they began PBL 6-9 months prior to the study. Phase 4 schools consisted of the most recent volunteers into the scheme at the time. Due to the phased implementation of PBL, this meant that the school sample was at different stages in their engagement with the PBL initiative. Initially we invited principals from PBL Phases one, three and four primary, high and special schools. The group of 10 schools invited to participate as a control group did so for the survey component only.

Table 3.1: Phases of PBL schools – training and participation

<table>
<thead>
<tr>
<th>Schools</th>
<th>PBL Training</th>
<th>Length of participation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 1 Schools</td>
<td>November 2005</td>
<td>18 months</td>
</tr>
<tr>
<td>Phase 3 Schools</td>
<td>September 2006</td>
<td>9 months</td>
</tr>
<tr>
<td>Phase 4 Schools</td>
<td>May-June 2007</td>
<td>1 month</td>
</tr>
<tr>
<td>Control Group</td>
<td>Not trained</td>
<td>0 months</td>
</tr>
</tbody>
</table>

There were 2723 participating students from Years 3, 5, 7, 9 and 11 from the consenting schools who took part, primarily in the survey, with the permission of their parents. Research strategies were conducted according to the approval conditions set by the Research Ethics Committee of the University of Western Sydney Approval to conduct the research was requested through the State Education Research Approvals Process (SERAP). On advice of the SERAP office, the application was assessed and approved through the regional research approval process. The schools remain anonymous and are identified as a number in this report. The students’ parents also received invitations to participate in the survey, as did staff from the consenting schools. The survey instruments have been designed to allow longitudinal tracking of participant students and teachers in future research.

Three of these schools also contributed to the fieldwork component of the study. In these schools we conducted interviews and focus group discussions with the school PBL leadership teams, teaching staff, students, parents and PBL coaches. Of these three schools two were Phase 1 schools, including one primary and one high school and the third was a Phase 3 primary school. The Regional PBL Leadership Team also consented to be involved in in-depth interviews and group discussions.

The breakdown of participating students’ gender and year level is shown in Table 3.2. Table 3.3 presents the parents and DET staff, School Leadership Team and coaches who participated in the research.

Table 3.2: Student sample (N = 2723)

<table>
<thead>
<tr>
<th></th>
<th>Year 3</th>
<th>Year 5</th>
<th>Year 7</th>
<th>Year 9</th>
<th>Year 11</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Boys</td>
<td>Girls</td>
<td>Boys</td>
<td>Girls</td>
<td>Boys</td>
</tr>
<tr>
<td>PBL Students</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number</td>
<td>188</td>
<td>176</td>
<td>193</td>
<td>179</td>
<td>293</td>
</tr>
<tr>
<td>Percentage</td>
<td>52</td>
<td>48</td>
<td>52</td>
<td>48</td>
<td>49</td>
</tr>
<tr>
<td>Total</td>
<td>364</td>
<td>372</td>
<td>598</td>
<td>592</td>
<td>592</td>
</tr>
<tr>
<td>Control Group</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number</td>
<td>22</td>
<td>21</td>
<td>20</td>
<td>21</td>
<td>79</td>
</tr>
<tr>
<td>Percentage</td>
<td>51.2</td>
<td>48.8</td>
<td>48.8</td>
<td>51.2</td>
<td>48.5</td>
</tr>
<tr>
<td>Total</td>
<td>43</td>
<td>41</td>
<td>163</td>
<td>118</td>
<td>100</td>
</tr>
</tbody>
</table>

14
Table 3.3: Staff, parents, leadership team, and coaches’ sample

<table>
<thead>
<tr>
<th></th>
<th>Staff</th>
<th>Parents</th>
<th>Leadership team</th>
<th>Coaches</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Males</td>
<td>Females</td>
<td>Males</td>
<td>Females</td>
</tr>
<tr>
<td>PBL Schools</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number</td>
<td>71</td>
<td>289</td>
<td>316</td>
<td>58</td>
</tr>
<tr>
<td>Percentage</td>
<td>20</td>
<td>80</td>
<td>84.6</td>
<td>15.4</td>
</tr>
<tr>
<td>Total</td>
<td>360</td>
<td>374</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control Group</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number</td>
<td>27</td>
<td>60</td>
<td>16</td>
<td>77</td>
</tr>
<tr>
<td>Percentage</td>
<td>31</td>
<td>69</td>
<td>17</td>
<td>83</td>
</tr>
<tr>
<td>Total</td>
<td>87</td>
<td>93</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3.3 Measures

3.3.1 School-wide Evaluation Tool (SET)

The WSR DET collected behavioural data using the School-wide Evaluation Tool (SET), designed by Sugai, Lewis-Palmer, Todd, and Horner (2001). The SET is a research level measure that assesses fidelity of implementation based on 2-3 hours of observation of positive behaviour support systems and practices within a school by an independent observer. The SET is conducted annually by the coach who examines school material (e.g. school discipline/welfare policies, school plans and goals, social skills instructional materials, behavioral incident summaries, and office discipline forms). The coach observes the school environment, interviews the school principal and randomly selects students, teachers and other staff to briefly interview about the school-wide program (Horner, 2004). The SET measures the percentage of implementation of seven feature areas:

1. Expectations defined
2. Behavioural expectations taught
3. On-going system for rewarding behavioural expectations
4. System for responding to behavioural violations
5. Monitoring and decision-making
6. Management
7. District/Region-level support of school-wide positive behaviour support.

The School-wide Evaluation Tool (SET) is used to evaluate and assess the critical features of school-wide effective behaviour support across each academic school year. The SET results are used to:

1. assess features that are in place;
2. determine annual goals for school-wide effective behaviour support;
3. evaluate on-going efforts toward school-wide behaviour support;
4. design and revise procedures as needed; and
5. compare efforts toward school-wide effective behaviour support from year to year.
Multiple sources are required to collect the SET data. These comprise review of permanent products, as well as observations and interviews or surveys from staff (minimum of 10) and students (minimum of 15). A series of steps are followed when gathering the SET data. Firstly, the school contact person and PBL coach negotiate a time for the SET to be completed and a meeting time with the Principal is established. The contact person arranges for the collection of the following documents:

1. Discipline policy/guidelines  
2. School improvement / management plan goals  
3. Annual Action Plan for meeting school-wide behaviour support goals  
4. Social skills instructional materials/implementation time line  
5. Behavioural incident summaries or reports (e.g., office referrals, suspensions, expulsions)  
6. Office discipline referral form(s)  
7. Other related information (maybe Student Welfare Policy)  
8. Copy of the school rules/expectations

The PBL Coach reviews the products and completes an interview schedule with the Principal, at least 10 staff members and at least 15 students at the school. The PBL Coach also makes some observations in classroom and non-classroom areas of the school. The PBL Coach assesses all data and completes the SET.

The SET is one means of assessing a schools level of implementation on school-wide practices and systems. The results provide schools with a measure of the extent to which school-wide PBL features are in place. The SET data is designed to provide trend lines of improvement and sustainability over time.

3.3.2 Survey measures

Research into effects on behaviour, including that undertaken by the US developers of PBIS, indicates that significant behavioural and academic outcomes are typically only achieved after more extended periods of time than the initial 12-month research partnership. However, research into attitudinal dimensions of change has found that this commonly precedes and predicts behavioural and academic outcomes.

Accordingly, the present research undertook to measure and compare attitudes and learning through investigating the following dimensions:

a. Student motivation  
b. Student and teacher self-concept  
c. Teacher self-efficacy  
d. Student achievement

These survey dimensions provided for more subtle and specific investigation of the effects of PBL than is possible through the collection of observational data, such as that gathered by WSR DET using the SET instrument.

The surveys measured the effects of PBL on teachers and students from 31 Western Sydney Region primary, high and special schools. A cross-sectional analysis was undertaken to compare:

a. Phase 1 Schools that had already been trained in PBL, with  
b. Phase 3 Schools that were recently trained, with  
c. Phase 4 Schools that had not yet participated in PBL training at the time the surveys were administered, but had trained their teachers, and  
d. Control group schools that were not involved with the implementation of PBL.
Each of the following five measures selected for the survey component of the research has strong psychometric properties and have been shown through a substantial body of previous research to be linked with both behavioural and learning outcomes and to have significant predictive properties.

**Motivation** can influence not only student achievement but also their enjoyment and interest in school and learning (Martin, 2001; 2002; Martin & Debus, 1998; Martin, Marsh & Debus, 2001). Additionally, students who are motivated by a high effort goal orientation tend to invest effort in the mastery of knowledge and skills in order to achieve academically (Yeung & McInerney, 2005). Motivation entails both attitudinal and behavioural dimensions that can be expected to predict improvements in academic outcomes. These were assessed using the Student Motivation and Engagement Scale (Martin 2001, 2003) and the Effort Orientation Scale from McInerney’s Inventory of School Motivation (2003; McInerney, Marsh, & Yeung, 2003; McInerney, Yeung, & McInerney, 2001). Sample items from the Student Motivation and Engagement Scale (SMES) are presented in Table 3.4. Sample items from the Effort Orientation Scale from the Inventory of School Motivation are presented in Table 3.5.

**Table 3.4: Sample items from the Student Motivation and Engagement Scale**

<table>
<thead>
<tr>
<th><strong>Self-belief</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>I try hard to make sure that I am good at my schoolwork</td>
</tr>
<tr>
<td>I try hard at school because I am interested in my work</td>
</tr>
<tr>
<td><strong>Value of schooling</strong></td>
</tr>
<tr>
<td>If I try hard, I believe I can do my schoolwork well</td>
</tr>
<tr>
<td>What I learn at school will be useful one day</td>
</tr>
<tr>
<td><strong>Learning focus</strong></td>
</tr>
<tr>
<td>I feel very happy with myself when I do well at school by working hard</td>
</tr>
<tr>
<td>I feel very happy with myself when what I learn at school shows me how something works</td>
</tr>
<tr>
<td><strong>Planning and monitoring</strong></td>
</tr>
<tr>
<td>Before I start a project, I plan out how I am going to do it</td>
</tr>
<tr>
<td>I usually stick to a homework plan</td>
</tr>
<tr>
<td><strong>Study management</strong></td>
</tr>
<tr>
<td>I usually do my homework in places where I can concentrate</td>
</tr>
<tr>
<td>When I do homework, I get organised so I can do it well</td>
</tr>
<tr>
<td><strong>Persistence</strong></td>
</tr>
<tr>
<td>If I can’t understand my schoolwork, I keep trying until I do</td>
</tr>
<tr>
<td>I’ll keep working at difficult schoolwork until I’ve worked it out</td>
</tr>
<tr>
<td><strong>Anxiety</strong></td>
</tr>
<tr>
<td>When I do tests I don’t feel very good</td>
</tr>
</tbody>
</table>
I worry about school and schoolwork

<table>
<thead>
<tr>
<th><strong>Low control</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>When I get a bad mark I don’t know how to stop that happening next time</td>
</tr>
<tr>
<td>I don’t know how to get good marks at school</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Failure avoidance</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>The main reason I try at school is because I don’t want people to think that I’m dumb</td>
</tr>
<tr>
<td>The main reason I try at school is because I don’t want my teacher to think bad things about me</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Self-sabotage/self-handicapping</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>I sometimes don’t work very hard at school so I can have a reason if I don’t do well</td>
</tr>
<tr>
<td>I sometimes waste time the night before a test so I can have a reason if I don’t do well</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Disengagement</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>I don’t really care about school anymore</td>
</tr>
<tr>
<td>I’ve given up being interested in school</td>
</tr>
</tbody>
</table>

**Table 3.5: Sample items from the Inventory of School Motivation**

<table>
<thead>
<tr>
<th><strong>Goal Orientation</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>I try hard to make sure that I am good at my schoolwork</td>
</tr>
<tr>
<td>I am always trying to do better in my schoolwork</td>
</tr>
</tbody>
</table>

**Students’ self-concept** regarding school and their schoolwork can significantly influence their academic achievement (Marsh & Yeung, 1997a, 1997b). The Self-Description Questionnaire (SDQ), developed by Marsh and validated in various cultural contexts (Skaalvik & Rankin, 1995; Yeung, Chow, Chow, Luk, & Wong, 2004; Yeung & Lee, 1999), assesses multiple dimensions of self-concept. The study assessed those subscales most relevant to school learning and positive behaviours: academic self-concept (including math, verbal and general school self-concept scales), emotional stability self-concept and parent relations self-concept. Table 3.6 provides a sample of these items. Based on suggestions by Marsh, Craven, and Debus (1999), the study also evaluated students’ perception of their academic competency and affect as measured by the affect component of general school self-concept (Yeung et al., 2004). Whereas the component of competency refers to the students’ perceptions of how good or how weak they are in schoolwork, the component of affect refers to the extent to which they like school. It was expected that at least for some students, the effects of PBL may not only improve the competency aspect, but also the affect component (i.e., they feel like going to school more than before).
Table 3.6: Sample items from the Academic Self-Description Questionnaire

| **Maths self-concept** | I get good marks in maths classes.  
| | I have always done well in maths. |
| **English self-concept** | I get good marks in English classes  
| | I have always done well in English. |
| **School self-concept of competency** | I am good at most school subjects.  
| | I learn things quickly in most school subjects. |
| **Emotional stability self-concept** | I am usually pretty calm and relaxed.  
| | I worry a lot. |
| **Parent self-concept** | I get along well with my parents.  
| | My parents treat me fairly. |
| **School self-concept of affect** | Going to classes is enjoyable.  
| | I hate school. |

**Teachers’ self-concept** could have changed as a result of the implementation of PBL within the school setting. As teachers engage in a team-based process that supports their efforts at improving student behaviours, positive shifts in problem solving self-concept, general self-esteem and emotional stability self-concept were expected. Relevant scales from the well established SDQIII instrument developed by Marsh (1993) were selected to assess these dimensions of teacher self-concept.

**Teacher self-efficacy** refers to the beliefs people hold about their capabilities, which determine how they feel, think, motivate themselves and behave in given contexts (Bandura, 1994). Studies of teacher self-efficacy indicate that it is strongly linked to effective teaching practices and that it is enhanced by positive classroom experiences (Hoy & Woolfolk, 1993; Tschannen-Moran, Woolfolk Hoy & Hoy, 1998; Tschannen-Moran & Woolfolk Hoy, 2001). If PBL leads teachers to establish effective educational practices we can consequently expect to see a corresponding increase in teacher self-efficacy. Moreover, based on previous research, we can expect that changes in teacher self-efficacy will lead to changes in students’ academic achievement. We employed The Ohio State Teacher Self-Efficacy Scale (OSTES; Tschannen-Moran & Woolfolk Hoy, 2001) to evaluate teacher self-efficacy. It comprises three key factors: efficacy for instructional strategies, efficacy for classroom management and efficacy for student engagement. Table 3.7 provides a sample of the OSTES scales.
Table 3.7: Sample items from The Ohio State Teacher Self-Efficacy Scale

<table>
<thead>
<tr>
<th>Efficacy for instructional strategies</th>
<th>To what extent can you use a variety of assessment strategies?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>To what extent can you craft good questions for your students?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Efficacy for classroom management</th>
<th>How much can you do to control disruptive behaviour in the classroom?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>How much can you do to get children to follow classroom rules?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Efficacy for student engagement</th>
<th>How much can you do to help your students value learning?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>How much can you do to foster student creativity?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Emotional stability</th>
<th>I am usually pretty calm and relaxed.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I am happy most of the time.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Self-esteem</th>
<th>Overall, I lack self-confidence.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Overall, I am pretty accepting of myself.</td>
</tr>
</tbody>
</table>

**Parental involvement and satisfaction** with PBL was investigated using a parent survey developed specifically for this project and distributed to parents in Phase 1, 3, 4 and control schools. Current Australian national initiatives to support student behaviour and wellbeing (e.g., Commonwealth Dept of Health and Aged Care, 2000; Commonwealth of Australia, 2005; Commonwealth of Australia, 2006) emphasise the importance of active parental involvement as stakeholders in whole-school initiatives. This emphasis is also indicated in DET WSR’s stated goals for PBL, which promote ‘community processes’ aimed at achieving ‘shared responsibility’ for student behaviour (NSW DET, 2006b). Additionally the regional PBL team advocates parent participation on school leadership teams during information sessions and universal prevention training. There is an emphasis in training on communication systems which include parents.

Recent research into the development of social competence and its contribution to wellbeing emphasises the interlacing influence of multiple contexts, and highlights the importance of recognising and resourcing shared responsibility between schools, families and communities in order to enhance behavioural, learning and wellbeing outcomes (Shean, Pike & Murphy, 2005).

A short survey questionnaire ascertained what PBL schools were doing to enlist involvement and/or feedback from parents regarding PBL implementation. Questions sought parental satisfaction with the PBL project and any observed behaviour changes at home. Translation into community languages as required for participating schools was negotiated with the Regional Equity team to increase survey accessibility.

The student survey was designed to ask the students to self-assess the seven key variables (see Table 2 for the items in each variable). These items were arranged in a random order in the survey. The randomisation of items provided a rigorous test of the internal consistency of each of the key variables and their convergent and discriminant validities. Some of the survey items were negatively worded. The reverse wordings avoided the possibility of fixed patterns of responses from the students and enabled the researcher to identify dubious responses from usable data.
The survey data were collected by teachers in each school at a time they found suitable. Survey data were then entered by a research assistant. For the validation of the instrument, the data from schools of various phases and from all grade levels were pooled.

Before conducting any between-group comparison analyses, the first step was to validate the measuring instruments. To determine whether the instruments provided sound psychometric properties, Confirmatory Factor Analysis using LISREL (Byrne, 1998; Joreskog & Sorbom, 1993) and Reliability Analyses using SPSS (Joreskog & Sorbom, 2003; Nie, 1994) were conducted. This is an essential step in establishing baseline measurements for a subsequent longitudinal study that can attract ARC funding. These analyses revealed that the instruments provided reliable and valid measures, consequently comparative analyses were pursued. In particular, comparisons were made among the four groups of schools to indicate the extent to which the process has been effective during the beginning phases of implementation. The measures outlined above were compared with DET-supplied data on academic achievement and School-wide Evaluation Tool (SET) results.

3.4 Fieldwork methods

The use of fieldwork methods provided for in-depth investigation into the ways in which PBL has been adapted for WSR schools, as well as insights into any limitations of the implementation. Applying a combination of interviews, focus groups, direct observations and analysis of school documents we identified specific adaptations of the program for local contexts, and assessed whether they occurred within or outside the parameters currently prescribed under the PBIS model.

In research planning meetings with members of the WSR PBL Leadership Team, the importance of capturing the stories that emerge from different schools as they undertake to implement PBL in their own particular contexts, was strongly endorsed. Gathering and documenting narratives can assist schools to understand, own and recognise their own efforts and capacities in undertaking PBL, as well as providing evidence of the ways in which the PBIS program is adapted for local use. A case study approach provides significant capacity building benefits to the WSR PBL Leadership Team, by engaging them in reflection on their aims and practices, and documenting the regional processes associated with developing a WSR-specific version of PBIS.

The fieldwork methods that emerged as most suitable to this project included attendance at regional PBL meetings and events. Prior to and in preparation for the investigation the research team attended PBL retraining sessions with Phase 1 schools, training with Phase 3 school teams and attended regional information sessions for schools. The case study model began at the regional level where fieldwork was conducted via participant observation at meetings of the PBL Leadership Team. A meeting with the Regional Equity team provided cultural and language support for implementing the research in schools. A member of the Aboriginal community (Regional Aboriginal Education Consultative Group) was consulted and provided support for the research methods and measures with regard to Indigenous protocols. Attendance at PBL Coaches meetings helped in refining the survey and interview questions and providing a framework for in-depth analysis of PBL implementation practices. Observing the PBL leadership team meetings in some of the field schools provided material for synthesising how PBL was being adapted in the WSR.

The fieldwork design is diagrammatically represented in Table 3.8, which shows a range of enquiry methods with a broad cross-section of people involved in PBL implementation in the WSR.
Table 3.8: Range of fieldwork methods used to investigate three schools

<table>
<thead>
<tr>
<th>Fieldwork Methods</th>
<th>Regional PBL Leadership Team</th>
<th>Coaches PBL Leadership Team</th>
<th>School Staff</th>
<th>Students</th>
<th>Parents</th>
<th>Others, etc</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meetings/events</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interviews &amp; focus group discussions</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Artefacts/documents</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observations</td>
<td>x</td>
<td>x</td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
</tbody>
</table>

Interviews and focus group discussions were undertaken between August and November 2007 with consent of the key stakeholders at both the regional and school levels. Individual interviews with key members of Regional Leadership Team, including the WSR Regional Director and others who consented assisted in gaining a detailed understanding of the history of WSR’s decision to implement PBL, their expectations on implementation and necessary adaptations to date. Interviews were audio recorded with permission from the interviewees. Audio taped interviews followed the ethical protocols of qualitative research. Interviewees were given the opportunity to check the transcriptions of the audio recording. There were more people willing to participate than could be accommodated in this project. Tim Lewis agreed to a telephone interview about the transfer of the US PBIS approach to WSR including the systems training and technical support. Coaches from the three field schools willingly contributed to the research through interview. (Refer to Appendices 3.1 and 3.2 for the interview/discussion schedules).

In-depth investigation took place at the school level through interviews, focus group discussions, collecting artefacts and observing the organisation of PBL in three field schools: Two phase-one schools who had trained in PBL 18 months previously – one high and one primary school – and one primary phase-three school into their ninth month since PBL training. All three schools volunteered to participate in the PBL initiative. These schools were purposefully though randomly selected representing two Phases of PBL introduction and included a range of primary and high schools. Two researchers worked in each of these field schools to observe relevant PBL events, conducting focus group discussions with students, parents and staff and individual interviews with staff including those not on the PBL team. These interviews and discussions were designed to elicit participants’ perspectives on the systemic implementation of PBL and its effects on learning. (Refer to Appendix 3.3 for the field schools’ interview and focus group schedules). Observation notes, interviews and focus group sessions were recorded and transcribed and then analysed along with observation notes for key themes.

3.5 Analyses

3.5.1 Survey analyses

Statistical analyses were employed to investigate PBL effectiveness and examine survey data from teachers, students and parents. A series of analyses examined the effects of PBL on student learning and behaviour as well as the effects of PBL on teacher motivation and sense of self. Table 3.9 presents an overview of the analyses conducted.
Table 3.9: Overview of survey analyses

<table>
<thead>
<tr>
<th>Analyses conducted</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alpha Estimates</td>
<td>Determine the internal consistency of each scale with multiple indicators.</td>
</tr>
<tr>
<td>Confirmatory Factor Analysis</td>
<td>Examine the construct validity of the key variables to ensure their reliability and validity prior to conducting between-group comparisons</td>
</tr>
<tr>
<td>Multivariate Analysis of Variance</td>
<td>Test whether there are differences in self-efficacy, motivation, self-concept between the PBL students and teachers and control groups as well as compare differences between the PBL participants in Phases 1 and 3.</td>
</tr>
</tbody>
</table>

3.5.2 Fieldwork analyses

The fieldwork data gathered primarily from three schools and the Regional Leadership Team was analytically processed using an initial ‘coding paradigm’ (Strauss 1987, p.5) and subsequently through comparative analysis. A graduated approach enabled the qualitative data to be coded using methods of constant comparative analysis (Glaser & Strauss 1967; Lincoln & Guba 1985; Strauss & Corbin 1998). Data were processed from a range of sources: from the student, parent, teacher, coach and leadership team interviews and focus group discussions and from relevant school and region documents as cultural texts. Concepts derived from both the fieldwork and surveys were synthesised to determine the effects of PBL on learning, behaviour and school change culture.

NVIVO™ version 7.0 software was employed to manage the exploration and ‘understanding of rich data; … discovery and uses of patterns; construction of new concepts and testing of old; linking of these into theoretical frameworks, explanations, and models; and validating of impressions and conclusions’ (Richards & Richards 1998, p.213). The code-and-retrieve process (Richards & Richards 1998) is a function of NVIVO™, which consists of the generation of categories; decisions about the relevance of text segments to categories involving theoretical considerations; and viewing of nominated segments from many documents. The index system of NVIVO™ builds on this process through recording, retrieving, linking, indexing, exploring, testing and building cumulatively on the insights derived from the data at both the textual and conceptual levels as well as emphasising system closure (Richards & Richards 1998a). This computer software managed the data processing and initial analysis of the in-depth interviews with WSR PBL Leadership Team members, US consultant, teachers and coaches as well as the focus group discussions with students, parents and teachers and research artefacts such as regional documents and conference presentations. It is worth noting that, even though many references to the Quality Teaching model arose throughout the research, neither the surveys nor the field study questions list it as an item. These references indicate that schools cited Quality Teaching strategies as significant to their teaching practices and without prompting.

A sample of the categories generated through the analysis of research materials using NVIVO™ included language changes, learning, consistency, momentum, staff turnover, motivation to participate in PBL and staff collaboration. Sub-categories in the initial phases of coding comprised roles of students, school-wide changes, translation from the Region, evaluation and defining PBL. Open and free coding (Strauss & Corbin 1998) of the ethnographic research materials generated three broad initial data categories,
primarily related to the research questions: implementation process, impact on learning and behaviour and translation of PBL to WSR.

‘Learning’ is a significant category in this study, which incorporates contextual influences deriving from the schools and region. Contextual sources relevant to the analysis include concurrent initiatives such as Quality Teaching and anti-bullying programs, the regional vision of a ‘relentless focus on learning’, behaviour support to schools and regional structural conditions. ‘Language changes’ indicates the changes to US terminology undertaken by the regions and participant schools in translating the US process to NSW. ‘Training’, ‘staff turnover’, ‘evaluation tools’, ‘motivation to participate in PBL’, ‘momentum’, ‘consistency’ and ‘staff collaboration and co-operation’ embrace key features associated with the implementation of PBL as well as codes which reflect whole school systemic change and change leadership. ‘Aims’, ‘outcomes’, ‘evaluation’ and ‘defining PBL’ are dimensions of PBL implementation.

The key phenomenon of PBL implementation is instigated by the causal conditions set up within region and schools (see Figure 3.1). The intervening conditions, context and interactive strategies (Strauss & Corbin, 1998) lead to consequences of the phenomenon. Further implications that flow from these relationships become apparent in the Findings chapters particularly Chapters 5, 7 and 8.

Figure 3.1: Schematic representation of the categories elicited from the data through the technique of axial coding
3.6 Research timeline
The research partnership project was conducted between November 2006 and March 2008. Key milestones involved administering the surveys in 31 WSR schools between June and August 2007 and data collection in the three fieldwork schools spanned September to November 2007. A more comprehensive account of the key stages of the research collaboration can be found in Appendix 3.4 though it is not able to capture the dynamic nature as actually experienced between the DET WSR and UWS partners.
Chapter 4
Validation of survey instruments

4.1 Construct validation

Before using an instrument to make comparisons between groups so as to test any significant contribution of an intervention to any outcomes, it is important to first validate the instrument such that the results can be trusted to reflect actual differences. There are various ways to validate an instrument. The first step is usually a test of internal consistency of each scale using Cronbach’s alpha reliability estimate which has a generally accepted target value of .70 (Garson, 2005; George & Mallery, 1995; Lewicki & Hill, 2006; Nunnally, 1978). In the present study, in addition to traditional reliability tests of internal consistency of each scale, the state-of-the-art confirmatory factor analysis (CFA) approach to construct validation was applied. CFA procedures have been described elsewhere (Bollen, 1989; Byrne, 1994, 2003; Cheung & Rensvold, 2002; Marsh, 1994; Marsh, Hau, Baumert, & Peschar, in press; Jöreskog & Sörbom, 1993; Little, 1997; Steenkamp & Baumgartner, 1998; Vandenberg & Lance, 2000), and they are therefore not detailed here.

In brief, CFAs were conducted with LISREL 8.72 (Jöreskog & Sörbom, 2005) using maximum likelihood estimation. In a CFA study, the parameters typically consist of factor loadings, factor variances and covariances, and measured variable uniquenesses (i.e., measurement errors associated with each item). In accordance with standard practice in multigroup analyses, covariance matrices were used as input (Kline, 1998; Cudeck, 1989; Jöreskog & Sörbom, 1993). The major purpose was to first test the extent to which the proposed model fitted the data from the sample, and then observe whether the relationships between factors were reasonable and logical.

Both absolute fit statistics and incremental fit statistics were utilised to evaluate the model fit (see Hoyle & Painter, 1995; Tanaka, 1993). The absolute fit statistics included the χ² test of exact model fit, the root-mean-square error of approximation (RMSEA; Browne & Cudeck, 1993). The incremental fit statistics (Hoyle & Painter, 1995) included the Comparative Fit Index (CFI; Bentler, 1990) and the Tucker-Lewis Index (TLI; Tucker & Lewis, 1973), also known as the non-normed fit index (NNFI; Benter & Bonett, 1980). For fit indices, in general, the CFI and TLI vary along a 0-to-1 continuum in which values equal to or greater than .90 and .95 are typically taken to reflect acceptable and excellent fits to the data, respectively. According to Browne and Cudeck (1993), RMSEA values in the vicinity of .05 indicate ‘close fit’, values near .08 indicate ‘fair fit’, and values above .10 indicate ‘poor fit’. Those scales that passed the CFA validation procedure would be used in subsequent analyses.

4.2 Student survey data

4.2.1 Preliminary analysis

Table 3.5 in Chapter 3 provided an overview of the analyses that were conducted. Preliminary analyses involved examining how well items loaded on the hypothesised subscales (Raykov & Marcoulides, 2000). This process involved examining the results from (a) Cronbach’s alpha coefficients and (b) the first-order Confirmatory Factor Analysis (CFA) with the combined instruments. The participants involved in the
preliminary analyses are presented in Table 4.1. The results of the fit statistics for the preliminary analysis of data available from 20 PBL schools are discussed below.

Table 4.1: Participants for the preliminary analysis

<table>
<thead>
<tr>
<th>School year</th>
<th>Percent of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 3</td>
<td>16.1%</td>
</tr>
<tr>
<td>Year 5</td>
<td>16.5%</td>
</tr>
<tr>
<td>Year 7</td>
<td>26.6%</td>
</tr>
<tr>
<td>Year 9</td>
<td>26.2%</td>
</tr>
<tr>
<td>Year 11</td>
<td>14.7%</td>
</tr>
<tr>
<td>Total</td>
<td>2258</td>
</tr>
</tbody>
</table>

4.2.2 Student self-concept

Reliabilities. The alpha reliability estimate for each scale was acceptable, and was higher than the target reliability of at least .70 (Garson, 2005; George & Mallery, 1995; Lewicki & Hill, 2006; Nunnally, 1978). The alpha estimates are presented in Table 4.2.

CFA. The CFA model tested the ability of the six factors to explain the relationships among the 31 items. We posited a highly restrictive a priori model such that each item was allowed to load on one and only one factor (all other factor loadings were constrained to be zero) and the uniqueness term (i.e., measurement error associated with each item) was not allowed to correlate with uniqueness terms for any other item. This model with 31 items positing six self-concept factors provided a good fit to the data (TLI = .93, CFI = .93, RMSEA = .056). See Figure 4.1 for the structure of the model positing six self-concept factors. The solution was fully proper and the factor structure was well defined with all factor loadings being positive and significant, and were larger than .30 (from .38 to .90). The correlations among the six factors were small to moderate (rs = .21 to .69), indicating that the factors were clearly distinguishable from one another (see Table 4.2). In sum, there was support for the six-factor model based on the finding of: (a) a reasonable model fit (i.e., TLI = .9 or above), (b) good factor loadings for the model (.3 or above for each item loading on the respective factor), (c) reasonably low correlations among the six factors (< .7). Now that the six factors have been validated, these factors derived from the CFA would be used for subsequent analysis.

Figure 4.1: Six self-concept factors derived from 31 measured variables

Note: N = 465
Table 4.2: Alpha reliability and CFA solution of a 6-factor student self-concept model

<table>
<thead>
<tr>
<th></th>
<th>Competency</th>
<th>Affect</th>
<th>Maths</th>
<th>English</th>
<th>Parent</th>
<th>Emotions</th>
<th>Uniqueness</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Alpha</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>.90</td>
<td>.91</td>
<td>.91</td>
<td>.92</td>
<td>.82</td>
<td>.80</td>
<td></td>
</tr>
<tr>
<td><strong>Items</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Competency 1</td>
<td>.87*</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>.25*</td>
</tr>
<tr>
<td>Competency 2</td>
<td>.88*</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>.23*</td>
</tr>
<tr>
<td>Competency 3</td>
<td>.79*</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>.38*</td>
</tr>
<tr>
<td>Competency 4</td>
<td>.79*</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>.38*</td>
</tr>
<tr>
<td>Competency 5</td>
<td>.74*</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>.46*</td>
</tr>
<tr>
<td>Affect 1</td>
<td>--</td>
<td>.83*</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>.31*</td>
</tr>
<tr>
<td>Affect 2</td>
<td>--</td>
<td>.87*</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>.24*</td>
</tr>
<tr>
<td>Affect 3</td>
<td>--</td>
<td>.85*</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>.28*</td>
</tr>
<tr>
<td>Affect 4</td>
<td>--</td>
<td>.87*</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>.25*</td>
</tr>
<tr>
<td>Affect 5</td>
<td>--</td>
<td>.76*</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>.42*</td>
</tr>
<tr>
<td>Maths 1</td>
<td>--</td>
<td>--</td>
<td>.90*</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>.19*</td>
</tr>
<tr>
<td>Maths 2</td>
<td>--</td>
<td>--</td>
<td>.85*</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>.28*</td>
</tr>
<tr>
<td>Maths 3</td>
<td>--</td>
<td>--</td>
<td>.84*</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>.29*</td>
</tr>
<tr>
<td>Maths 4</td>
<td>--</td>
<td>--</td>
<td>.89*</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>.21*</td>
</tr>
<tr>
<td>Maths 5</td>
<td>--</td>
<td>--</td>
<td>.87*</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>.24*</td>
</tr>
<tr>
<td>Verbal 1</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>.80*</td>
<td>--</td>
<td>--</td>
<td>.36*</td>
</tr>
<tr>
<td>Verbal 2</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>.82*</td>
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**Factor Correlations**

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*Note: N = 2260. Parameters estimates are completely standardised. *p < .05.
4.2.3 Student motivation

Figure 4.2 shows the structure of the model positing 11 SMES factors.

Reliabilities. The alpha reliability estimate for each scale was acceptable. Most estimates were higher than the target reliability of at least .70 (Garson, 2005; George & Mallery, 1995; Lewicki & Hill, 2006; Nunnally, 1978). Nevertheless, the alphas for Anxiety and Disengagement were relatively weak. The alpha estimates are presented in Table 4.3.

CFA. The CFA model tested the ability of the 11 factors to explain the relationships among the 44 items. As before, we posited a highly restrictive a priori model such that each item was allowed to load on one and only one factor (all other factor loadings were constrained to be zero) and the uniqueness term (i.e., measurement error associated with each item) was not allowed to correlate with uniqueness terms for any other item. This model with 44 items positing 11 SMES factors provided a good fit to the data (TLI = .93, CFI = .93, RMSEA = .042). The solution was fully proper and the factor structure was well defined with all factor loadings being positive and significant, from .38 to .90. The correlations among the 11 factors varied ($rs = -.70$ to .94). The correlation between the Belief and Value factors was particularly high ($r = .94$), indicating that some students may not clearly distinguish between these two factors (see Table 4.3). However, the correlations for most factors were logical and medium. In particular, the correlations between the positive and the negative motivation factors were negative. Overall, there was reasonable support for the 11-factor model based on the finding of: (a) a reasonable model fit (i.e., TLI = .9 or above), (b) good factor loadings for the model, (c) reasonably low correlations among most factors, except for a few correlations which were $>.80$. Subsequent analysis used the scale scores by averaging the item scores in each scale.

![Diagram of Eleven SMES factors derived from 44 measured variables](image)

**Figure 4.2: Eleven SMES factors derived from 44 measured variables**

Table 4.3: Alpha reliability and CFA solution of an 11 factor SMES model

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4.3 Teacher self-concept and self-efficacy

Figure 4.3 shows the structure of the model positing two teacher self-concept factors (self-esteem and emotional stability self-concept) and two teacher self-efficacy factors (Instruction and Management).
Reliabilities. Preliminary analysis found that one of the items for Instruction self-efficacy and three items for Management self-efficacy tended to lower the alpha reliabilities of the respective scales. These items were deleted from subsequent analysis. The scales with 5 items for self-esteem, 5 items for emotional stability, 7 items for Instruction self-efficacy, and 5 items for Management self-efficacy had acceptable alpha reliability estimates, which were higher than the target reliability of at least .70 (Garson, 2005; George & Mallery, 1995; Lewicki & Hill, 2006; Nunnally, 1978). The alpha estimates are presented in Table 4.4.

CFA. The CFA model tested the ability of the four factors to explain the relationships among the 24 items. The model provided a reasonable fit to the data (TLI = .89, CFI = .90, RMSEA = .073). The solution was fully proper and the factor structure was well defined with all factor loadings being positive and significant, from .30 to .91. However, the TLI value was < .90. Because there were negative items in the self-esteem and emotional stability scales which might have errors due to a negative wording method effect, a second model was tested with the error terms of the negatively worded items correlated within each of these scales. For the two negatively worded items in self-esteem, there was one correlated uniquenesses added, and for the three negatively worded items in emotional stability self-concept, there were three correlated uniquenesses added. Hence because of adding a total of four correlated uniquenesses in the model, the df was reduced from 246 to 242. This model provided a good fit to the data (TLI = .92, CFI = .93, RMSEA = .064). The solution of this model is presented in Table 4.4. All factor loadings were larger than .30. The correlations were mostly medium. Although the correlation between self-esteem and emotional stability was fairly high (r = .85), they were still distinguishable from each other. In sum, there was support for the four-factor model. Now that the four factors have been validated, these factors derived from the CFA would be used for subsequent analysis.

Figure 4.3: Four teacher self-concept and self-efficacy factors derived from 24 measured variables

Note: N = 394
Table 4.4: Alpha reliability and CFA solution of a 4-factor teacher self-concept and self-efficacy model

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**Factor Correlation**

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*Note: N = 394. Parameters estimates are completely standardised. All estimates were statistically significant (p < .05).*
Chapter 5
Findings: Implementing PBL

5.1 Introduction

The following four chapters present the findings of the investigation into Positive Behaviour for Learning (PBL) with reference to the research questions (RQ). Because the study applied a mixed-method approach, results from both survey and fieldwork data are presented to provide answers to the following research questions:

- **RQ 1.** How have schools implemented PBL? Which processes have schools found effective for their different contexts?
- **RQ 2.** What effects are evident from students’ behaviour, motivation, self-concept, and learning?
- **RQ 3.** How does the implementation of PBL impact on the attitudes of school staff, students, and parents to learning and behaviour?
- **RQ 4.** What changes are made to the PBIS model at a school and regional level as part of implementing PBL? For what reasons and to what effect?

The first research question addressed in this chapter is RQ 1: How have schools implemented PBL? Which processes have schools found effective for their different contexts?

Data from the in-depth fieldwork in three schools are analysed in responding to this question. In the main, these three schools have implemented school-wide and non-classroom PBL strategies, including the establishment of three to five school-wide expectations, routines and procedures for non-classroom settings, and the development of teaching and practice opportunities and consequences, as well as the management of relevant data collection (Lewis & Sugai, 1999). In these two Phase-1 and one Phase-3 fieldwork schools, features have emerged that illustrate the common paths these schools have taken in faithfully implementing PBL. There are also some differences between schools as they engaged with the systemic processes integral to PBL, which constitute a significant frame through which to observe implementation. This chapter is contextualised at the school level where both features common to the three fieldwork schools and differences in the way schools have contextualised the process are distinctive to the implementation of PBL in the Western Sydney Region. The features shared across the schools are the provision of consistency in teacher response to students; the relevance of increased local examples in the training of teachers and coaches; and the warmth of the interaction between schools and their coaches. Differences between schools in how they contextualised the PBL process between schools include the involvement of students in decision making about the systemic processes; clustering between primary and high schools; and staff ownership of the PBL program.

5.2 Shared feature 1: Consistency

One of the most often reported strengths of the PBL process is its ability to produce consistency. All schools involved in the survey and the fieldwork reported on the importance of consistency. As a result of PBL implementation behaviour is taught consistently, referrals are made consistently and data is collected systematically. The consistency brought in by PBL is seen by teachers to be a factor in improving their
satisfaction in the classroom and a contributor to the outcome often mentioned that students are now ‘more settled.’ It is certainly the case that schools sought more consistency and the process of PBL is very systematic, so consistency was likely to be a principal outcome. It is noteworthy that in the Phase 1.1 School (first fieldwork school in Phase 1), the introduction of consistency was also found to be a desire of the student population. Evidence based on a student survey revealed that students wanted greater consistency from teachers in relation to playground expectations.

This Phase 1 School has been proactive about creating signage in the school and playground, explicitly so that teachers would know and use the rules and create this consistency. Posting school wide expectations around the school is one of the features of PBL training. There is some indication that the effort to promote consistency in rules in the playground was also having an impact on classroom teaching, although the school had not reached the stage of addressing school-wide expectations in the classroom. In an exchange, members of the PBL team said:

Teacher 1: I use it every time I have to reprimand a student. I always refer to the sign and make them stop and say ‘are you using any of those points.’ That is what my head teacher suggested I do and it has been really positive in my classroom.

Teacher 2: It is about consistency.

In a focus group, students provided corroboration that consistent use of the core expectations was happening in the school. They noted:

Student 1: My PE teacher always brings it up. How ‘we have expectations of students.’ He always talks about that and incorporates it. The expectations are up in every classroom.

Student 2: So does my English teacher.

Student 3: Everyone of my teachers basically.

At Phase 1.2 School (second field work school in Phase 1) the special education teacher commented:

The teachers all know what they have to say, “Daniel, you know that that’s not being respectful or safe, you now need to do this.” And it goes from those low level hints or cues, to a formal reminder. “Now I am reminding you of our being safe rule. You know the consequences.” Then it goes to a second reminder, a warning and then he knows he has to leave the classroom or playground.

In summary, the view of the participants at the Phase 1 schools was that consistency of rules and their application was valued by the staff and students and this was a feature of PBL.

Schools in Phase 3 placed a similar emphasis on consistency, seeing PBL as being a way of making this happen. The principal of the Phase 3.1 School (first fieldwork school in Phase 3) explained the aims in this way:

We want consistently the same rules from all teachers so that students know what’s expected of them. They get the same from one teacher to another. Before we started implementing PBL, we had some teachers put a student
on detention for minor things while you could do something major with other teachers and be ignored. As we get a lot of change in staff and executive there were structures that were beginning to drift. When we took PBL on board it was time and PBL offered support. So, there’s consistency in the way staff implemented and acted and consistency for students to be aware of our expectations, for parents to be comfortable. It was time to tie our welfare things together. We wanted to ensure that the positive behaviours are valued.

Teachers at this Phase 3 School were appreciative of the consistency resulting from the introduction of expectations and the dissemination of these through the school. One said:

It is just a different way of teaching students the rules instead of me just making up rules with them in the classroom. It is consistent right across the school. The children in my class know it is not just me that is expecting that, it is everyone. All teachers follow the same set of procedures.

This teacher, new to the school, appreciated being able to tap into a framework like that provided by PBL. Two other teachers interviewed at this school made similar comments. The special education teacher at Phase 3.1 School expressed the view that consistent rules were a great asset for her students. She gave an example of one student:

He kept on running in the out of bounds area and then someone told him, and he didn’t know it was out of bounds, so we took him on a little orientation. He is so much happier now he knows what is expected of him. It’s great and it makes a big difference to everybody not just the children.

Students in focus groups at this school expressed the view that having these rules, and having teachers all work with them had made life better at school.

Across the region this tendency for PBL to create a consistent approach to process may be reflected in the way the data is reported. For example, such data is captured in a regional report in Term 2, 2007 (Western Sydney Regional Report Submission, May 2007) demonstrating that the number of long suspensions in Phase 1 and 2 schools declined by 15% from 2005 to 2006 compared to a 14% increase in long suspensions among non-PBL schools. The educational impact of fewer long suspensions is the corresponding increase in the number of days available for learning to occur.

In summary, the findings from the fieldwork study suggest that the processes of PBL contribute to the shared language that is developed between teachers, students and parents creating a valued consistency. Developing such consistency is explicitly addressed in PBL training, which emphasises universal prevention-development of a common language, common vision and common experiences.

5.3 Shared feature 2: Applying PBL to the school context

5.3.1 Training

The WSR of the Department of Education and Training (DET) has solicited local examples from the schools involved in PBL and embedded it in the training of teachers and coaches. The Regional PBL Leadership Team has also encouraged schools involved in PBL to tell their story to regional administrators, the wider school community, and the teaching community. There have been presentations by several schools about their PBL journey. As noted by one coach this has enabled the Region to increase local examples in training school teams thus building relevance and inclusivity.
5.3.2 The School PBL Leadership Team

Within the local ownership, the role of the executive is significant, as is membership of the PBL Leadership Team. In Phase 1.1 School there was stable leadership, with the principal appointed to the school in 2003, the year of publication of Quality Teaching in NSW public schools (NSW Department of Education and Training, 2003). The model was strongly implemented in the school. To a large extent, staffing was also stable. The principal discussed the longevity of staff members (one of 25 years, another of 15 years service) as a positive contribution to school life. He also made the point that PBL gives long serving staff ‘a language with which to speak with Generation Y’. In Phase 1.2 School the staffing was also very stable, working productively as a team. In Phase 3.1 School the Principal took up the appointment at the school just as the PBL process began. Stability of the team was tested with ongoing changes in staffing, including from the leadership team. One of the team at Phase 3.1 said:

For us it’s been a very slow, gradual process. We have such a large staff turnover. Even this term, we had to refresh staff at a training and development session. That is really unusual. We talked about this at our last PBL meeting. … With new teachers, next year we are going be revisiting the whole thing and how it all works, on the first day back, the staff development day.

It was found during the data gathering process that some of the other schools who participated in the survey underwent changes in both executive and PBL leadership team. Staff turnover has an impact on schools especially in terms of the momentum of implementing PBL. It is something worth emphasising within the context of local ownership – that change in both the executive and the PBL team could produce challenges for a school to address while implementing the PBL process.

Schools’ ownership of PBL is reflected in everything they have done and the evidence shows that these schools have not been required to implement a prescriptive program. All three fieldwork-schools have made the process their own, developed their own core expectations, devised their own lessons and approached it with their own priorities. This shared decision-making process worked effectively in schools where members of the Leadership Team were open to new ideas and shared responsibility with the school executive in a distributed leadership model. At Phase 1.2 School the coach felt that he had had the chance to introduce ideas that work in relation to the local needs and satisfaction of the school. In an early presentation to staff at the Phase 3.1 School, the School PBL Leadership Team used some slides and information from US examples. In a subsequent powerpoint presentation all slides had the student-devised logo attached and all of the information was generated within the school.

5.4 Shared feature 3: Interaction of schools and coaches

Coaching is essential in the PBL process to increase transfer of learning in the areas of needs assessment, planning, evaluation, systems development and action planning. Part of their role is collecting the School-wide Evaluation Tool (SET) data from schools. That the coaches are teachers/teacher consultants is important. This has enabled the PBL teams in the three case study schools to respond to them as colleagues. They have valued the way coaches have helped participants transfer learning experiences in training sessions into practice in the schools. The principal from Phase 1.1 School commented that having a coach to work with is something different from other change processes for schools. His view was that it has been very beneficial, helping keep the PBL team on track towards the achievement of their goals.
This comment of ‘keeping on track’ introduces language of shared accountability that demonstrates a change from language of collegial support. As coaches are external to the school setting, they do not engage in the day-to-day issues of the schools with which they work. Consequently they can, and it seems are expected to, be accountable for helping the team focus on the challenges they have to meet. The coaches discussed ‘providing a picture of how the whole process works’ (Phase 1.2 School) and ‘getting data recorded accurately’ (Phase 3.1 School). They are in the position of supporting school leadership teams to use the PBL process to achieve their goals. At the same time, they also experienced workload pressure and the perceived notion of accountability is different to the way it is addressed in the training for coaches, and in the documentation of their role.

Coaches have recognised that they encourage teams to become self-analytical by asking questions to promote reflection. One coach (at Phase 3.1 School) described her role as being a 'positive nag' while allowing the team with whom she worked the ability to retain ownership, even if it meant allowing them to take the long route. Another (at Phase 1.1 School) explained:

As coaches, we’re given a scaffold and a framework, to see their [the teachers’] role within that. I see my role as being a member of that PBL team, giving guidance and strategies. Often trying to guide the team to come up with the ideas themselves. In Australia, we expect a coach [eg. of a sporting team] to have all the answers. In this role, we don’t do that but get the team to come up with the answers to their problems, and have ownership of those solutions, so it’s not some outsider coming in. Often I’m working with the team to come up with a scaffold of how they’re going to implement something. Then they take those examples back to their staff meetings, get input from the staff and then we meet together. We want to ensure that it is their project.

Another coach (at Phase 1.2 School) linked the role strongly to the data collection:

I’m a different voice at meetings. I present a broken record or mantra in saying “Does the data tell you there’s a problem?” I counter knee-jerk reactions and am always asking: “Have you seen any changes?” It’s easier for the coach to have this job. And I put items on the PBL leadership agenda.

This coach commented that the leadership committee with whom he worked was a good model in that everyone on the team was involved in the feedback process to the whole staff. At Phase 3.1 School, the coach added:

It’s the coordinated approach that makes all the difference. The benefit of making people look at what’s happening is that they become proactive, not reactive.

The region has reported that, as increasing numbers of schools come on board, it is increasingly difficult to attract sufficient coaches to support school PBL teams. Pressure will increase as more schools move to implementing second and third tier supports, as a new set of skills and expertise will be required of coaches to effectively support schools operating at these levels.
5.5 Contextual difference 1: Involvement of students in decision making

In the primary schools the whole school support for implementing PBL extended to the students, who were involved at many stages of the process. At the Phase 3.1 School, for example, the students had participated in a poster competition to design a logo, and were very proud of the winning entry. Each class had self-evaluation surveys, which they filled out as part of their PBL learning, and one teacher commented:

I was actually surprised with the self-evaluation surveys. A few of the boys are very challenging at times, and they don’t enjoy writing, so to do a survey every afternoon about their behaviour, where they have to give examples of how they had done the right thing or the wrong thing was not easy. I was surprised by how much they enjoyed doing this, and how honest they were. They would write down if they had said something inappropriate to someone, if they had done something inappropriate. Things that I could have checked if I needed to but they were just really honest. I feel that has made a big impact on the kids, doing those evaluation surveys, because they feel that they are part of it and all learning it together.

In summary, the primary schools had an exemplary record of involving their students in the process. Phase 3.1 School in particular had a very effective policy of student involvement in their own learning about behaviour. This involvement appeared to reflect the school’s developing inclusive practice. For example the principal of Phase 3.1 noted:

Since I arrived I have worked hard on children having a say. A lot of teachers back then didn’t understand why they should listen to a kid. The culture has now changed to one where teachers will listen to children. We can now set up a resolution meeting with the child when there is a problem. Teachers will come on board with this where once they wouldn’t have. PBL supports this process.

5.6 Contextual difference 2: Clustering between primary and high school

Some links between high school and partner primary schools have been achieved through their proximity and purposeful collaboration in developing their schools’ expectations. Maximising this, in some cases, the high school and primary school share the same coach. So there have been interesting ways in which the idea of clustering has begun to work for the schools. At Regional level strategic support has been provided for clustering, combining primary and high schools in the same region so that the PBL process would result in consistency through transition. While this is not yet a common feature, it has resulted in Phase 1.1 School planning future developments to extend links between partner schools.

The Phase 1.1 school had entered the PBL program in concert with two feeder schools. The reason given by a member of the PBL team was:
It actually had links, because we were both year advisors and we were both concerned that we didn’t have a common language with the primary school about our expectations. Our original submission put in that we would be working with the 2 feeder schools and be talking about common language. Reinforcing our expectations.

The idea of having a common language where we talk to the kids and where we say we treat people with respect and we know what respect means from one school to another was very appealing. We felt demographics were changing and cultural background was changing and what we were expecting was not necessarily what the community understood that we wanted. So we were trying to address that imbalance.

With the students in Year 7 the high school staff have been explicitly teaching the expectations when they arrive. Staff spend the first week of orientation embedding the high school’s expectations of ‘safe respectful learner’ and teaching the students what that means. They have trialed this in 2007, and in 2008 the school intends to expand the process through the focus on the element of being a learner and what that means. This includes having the staff run a year’s study skills program. The principal confirmed that:

For us, literacy is a huge issue, has become so in more recent time. The gap, where kids are coming into the school as measured by the Year 7 SNAP and ELLA test, is widening between us and state average. In numeracy, we’re having good gains in bringing kids back to the state average. But I’m not satisfied with literacy so we’re going to be working fairly extensively on that. Without literacy, kids won’t be able to access or express the curriculum. With the boys, that leads into the behaviour.

As will be discussed further in chapter 7, the shared language between primary and high schools created with PBL was expected to facilitate learning.

5.7 Contextual difference 3: Staff ownership of the PBL process in their school

Overall, the process of rolling out PBL has been characterised by a supportive and giving ethos, possibly originating in the altruistic actions of the US team (who gave rather than sold the process), and extending down to school PBL teams. The importance of staff ownership of the PBL process is reflected in a set of minutes from Phase 1.1 School, which state:

Build in explicit teaching of playground rules into peer support so Yr 10 teaches Year 7 reinforcing the expectations.

Teach staff each of the expectations in each of the areas as a means of clarifying what goes in the school handbook.

Increase staff ownership.

The staff ownership is an ongoing issue in this high school. There are a number of documents where the school’s PBL team seeks more membership from faculties, or attempts to get staff involvement only to find ‘time gets away from us.’ By contrast the primary schools have a record of consulting teachers at each stage of the process. At
Phase 3.1 School, after the PBL self-evaluation results were returned to a staff meeting, teachers collectively brainstormed the lessons on expectations and then the PBL team collated and distributed them to each class. The teachers responded by offering roleplays, explicit lessons and reward systems that would reinforce the core expectations. As the principal noted:

We’re a small school and I think that on the whole we tend to be supportive. We didn’t get a reaction from staff that said, “We’re not doing that.” People were supportive but cautious. And they did what they could.

Staff members supported this view. One commented:

Definitely we have been included in the decision making with the principal and we have worked together and collaborated on areas that needed more focus. For example, we found we need more emphasis on safety and respect in the toilets; from the surveys we found that lot of kids were going to detention for that. So in every class teachers would focus on safety or do pictures about how you can be safe and respectful in the toilets. We would give each other ideas about how you might teach a principle or try a reward system. I also found it positive because all staff know they are being supported, and we have had some workshops about it.

At Phase 1.2 primary school the Principal felt that all of his staff had been involved, and PBL only worked because all staff showed “a high level of professionalism”. The Deputy Principal noted:

Everyone has pulled together. We’ve talked our way through each issue, for example, rules for games.

PBL team consists of people from all parts of the school and all can speak up.

Observations by the research team who attended the PBL leadership meeting and spoke to teachers would support the view that all staff were aware of and supportive of the PBL initiative.

A similar level of teacher enthusiasm and awareness was discernible at other primary schools where the charting of issues and possible solutions has been given a structure by the systemic processes set in place with the adoption of PBL. When Phase 1.2 School was generating the matrix of behaviours in the school-wide settings, the Principal recalled that they:

Had big board in staff room with ideas [for the PBL matrix]. We left it up for a number of weeks and every member of staff [had] the right to go there and put a post-it note up if they didn’t agree. There was a lot of revising and everyone’s opinions went up. The coach had very useful input. At that time, PBL meetings were very regular.

5.8 Summary

In summary, addressing the first research question concerned with PBL implementation and processes, this chapter has drawn attention to three shared features and three differences across the fieldwork schools. Schools have implemented PBL in ways that demonstrate their individuality while valuing particular features of the process. The common features were consistency, especially with regard to language and expectations;
the inclusion of local examples in the training; and the interaction of coaches and PBL teams especially in regards evidence (data) about changed behaviour. Comments from coaches and PBL teams suggest important considerations around the teacher background of the coaches, their interaction with the PBL teams and an ambiguous notion of coach accountability. Differences in the implementation processes across the fieldwork schools were involvement of students in decision making; clustering between primary and high schools; and staff ownership of the PBL process. Both common features and differences are distinctive in the implementation of PBL in the Western Sydney Region.

Features common across the PBL schools such as the consistency of language and the interactions of coaches have made a strong stamp upon the schools that have implemented the PBL process. Differences between schools arise from the groundwork on which schools were implementing this process. This groundwork includes programs by which student involvement in decision-making is scaffolded and fostered, and cross-school initiatives especially in the area of transition within the context of Quality Teaching.
Chapter 6
Findings: PBL effects on behaviour, motivation, self-concept and learning

6.1 Introduction
This chapter responds to the second research question: What effects are evident from students’ behaviour, motivation, self-concept, and learning? In examining the potential effects of PBL, a series of analyses were conducted to elucidate the differences between the experimental and control groups. Ideally PBL would bring about changes in school-wide behavioural management practices, which would change teacher efficacy, which would then change student behaviours to become more positive and improve student motivation, and self-concept, and attitudes that may have causal effects on subsequent learning achievement outcomes. These improvements would also bring about satisfaction of parents. Hence the analyses presented here include: (1) school-wide improvement in behaviour management (at the school level), (2) teacher self-efficacy (at the teacher level), (3) student behaviours, (4) student motivation, (5) student self-concept, and (6) parent, student, and teacher satisfaction.

6.2 School-wide behaviour management
To answer RQ2, we analysed data obtained from an independent assessor for each school participating in the program using the School-wide Evaluation Tool (SET) devised by Todd, Lewis-Palmer, Horner, Sugai, Sampson, and Phillips (2003), which was being used also by participating schools worldwide. The scoring of observed behaviours was in accordance with the Todd et al. (2003) manual. The observation data were recorded in seven categories, each with a different rating scale, but all with higher scores reflecting more favourable observations: (a) expectations defined (0-4), (b) behavioural expectations taught (0-10), (c) on-going reward system (0-6), (d) systems for responding to behavioural violations (0-8), (e) monitoring and decision-making (0-8), (f) management (0-16), and (g) regional level support (0-4). An average score for these seven categories was then calculated in percentages to represent an overall SET score.

Data were collected at Time 1 (after Universal Prevention training but prior to the implementation of PBL) and at Time 2 (12 months later). Hence when T2 data were collected, Phase 1 schools had implemented PBL for 18 months whereas Phase 3 and Phase 4 schools had implemented PBL for only 9 and 1 months respectively. By establishing the equivalence of baseline scores between these phases at T1 and comparing the parallel scores at T2, it would be able to scrutinise the effects of the program over time. SET evaluations are completed after 12 months of implementation. At the time of analysis, SET data were available only from some schools (12 out of 21 schools) and so there are limitations in the analysis. Nevertheless, a clear pattern seemed to have emerged even from this limited subsample of available data. The distribution of available data is presented in Table 6.1.

Table 6.1: PBL schools with SET data available

<table>
<thead>
<tr>
<th></th>
<th>Primary Available</th>
<th>High Available</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(Sampled)</td>
<td>(Sampled)</td>
</tr>
<tr>
<td>Phase 1</td>
<td>5 (5)</td>
<td>3 (4)</td>
</tr>
<tr>
<td>Phase 3</td>
<td>4 (5)</td>
<td>0 (2)</td>
</tr>
<tr>
<td>Phase 4</td>
<td>0 (4)</td>
<td>0 (1)</td>
</tr>
</tbody>
</table>
Time 1 Comparison of SET Scores in Different Phase

A comparison of scores at T1 would provide a baseline for comparisons at T2. Because T1 data were collected before any intervention occurred, no between-phase difference would be expected in the SET scores. The means and standard deviations of the T1 SET scores in three phases are presented in Table 6.2.

Although the small sample size (total 20 schools with only 4 in Phase 3) did not allow a statistical test of significance, the pattern of results shows that any difference between the phases would be small. The pattern for the overall SET scores (in percentages) is presented in Figure 6.1. At T1, Phase 1 schools had an overall score of 59.77%, compared to 67.66% and 79.88% for Phases 3 and 4 respectively. Therefore no noteworthy differences were found between phases in each of the seven categories of the SET measure and in the overall SET score.

Table 6.2: Means and (Standard Deviations) of T1 SET Scores in 3 phases of PBL implementation

<table>
<thead>
<tr>
<th>Variable</th>
<th>Phase 1 (n=9)</th>
<th>Phase 3 (n=7)</th>
<th>Phase 4 (n=4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1 Define</td>
<td>1.89 (1.27)</td>
<td>2.43 (1.27)</td>
<td>2.00 (1.83)</td>
</tr>
<tr>
<td>T1 Taught</td>
<td>3.22 (2.77)</td>
<td>4.43 (0.98)</td>
<td>3.50 (3.32)</td>
</tr>
<tr>
<td>T1 Reward</td>
<td>4.56 (1.67)</td>
<td>5.00 (1.83)</td>
<td>5.00 (1.15)</td>
</tr>
<tr>
<td>T1 System</td>
<td>4.56 (2.30)</td>
<td>4.43 (1.40)</td>
<td>5.50 (1.00)</td>
</tr>
<tr>
<td>T1 Monitor</td>
<td>4.22 (2.11)</td>
<td>4.71 (1.60)</td>
<td>4.00 (1.41)</td>
</tr>
<tr>
<td>T1 Manage</td>
<td>9.44 (5.03)</td>
<td>12.86 (2.19)</td>
<td>9.50 (2.08)</td>
</tr>
<tr>
<td>T1 Region</td>
<td>2.89 (1.45)</td>
<td>3.14 (1.07)</td>
<td>3.50 (1.00)</td>
</tr>
<tr>
<td>Overall SET %</td>
<td>56.62 (24.10)</td>
<td>65.94 (9.34)</td>
<td>61.99 (14.68)</td>
</tr>
</tbody>
</table>

Note: The SET categories are: define = expectations defined (scored 0-4); taught = behavioural expectations taught (scored 0-10); reward = on-going reward system (scored 0-6); system = systems for responding to behavioural violations (scored 0-8); monitor = monitoring and decision-making (scored 0-8); manage = management (scored 0-16); region = regional level support (scored 0-4). The Overall SET score was the sum of the percentage in each of the 7 categories divided by 7.

Figure 6.1: Overall SET scores (%) for 3 phases
**Time 1 – T2 Comparison of SET Scores in Different Phase**

The total number of schools with available data for T2 was 12. Whereas T1 data have shown little difference between phases, a comparison of the T2 scores would provide information of any difference found as a function of the intervention (i.e., the effects of PBL program). A more rigorous approach would be to conduct a repeated-measures analysis of variance to statistically detect any significant change over time. However, given the small sample size, any statistical inference would be dubious. Furthermore, this small sample could only be divided into three groups: Primary Phase 1, High School Phase 1, and Primary Phase 3. Hence the analysis would focus on the pattern of change over time. The means and standard deviations of the T1 and T2 scores in seven SET categories and the overall SET score (in percentages) are presented in Table 6.3.

**Table 6.3: Means and (Standard Deviations) of T1 and T2 SET scores in 3 groups**

<table>
<thead>
<tr>
<th>Category</th>
<th>Primary Phase 1 (n=5)</th>
<th>High Phase 1 (n=3)</th>
<th>Primary Phase 3 (n=4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Expectation defined</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 1</td>
<td>1.80 (0.84)</td>
<td>2.67 (1.53)</td>
<td>2.50 (1.93)</td>
</tr>
<tr>
<td>Time 2</td>
<td>3.80 (0.42)</td>
<td>3.67 (0.58)</td>
<td>3.00 (2.00)</td>
</tr>
<tr>
<td>B. Behavioural expectations taught</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 1</td>
<td>3.80 (3.35)</td>
<td>3.33 (1.53)</td>
<td>4.50 (1.00)</td>
</tr>
<tr>
<td>Time 2</td>
<td>8.80 (1.64)</td>
<td>7.00 (3.00)</td>
<td>7.25 (4.27)</td>
</tr>
<tr>
<td>C. On-going reward system</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 1</td>
<td>5.20 (1.30)</td>
<td>4.67 (0.58)</td>
<td>5.75 (0.50)</td>
</tr>
<tr>
<td>Time 2</td>
<td>5.60 (0.89)</td>
<td>5.00 (1.00)</td>
<td>5.75 (0.50)</td>
</tr>
<tr>
<td>D. Systems for responding to behavioural violations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 1</td>
<td>6.00 (1.00)</td>
<td>3.67 (1.53)</td>
<td>4.25 (1.71)</td>
</tr>
<tr>
<td>Time 2</td>
<td>6.60 (1.67)</td>
<td>4.67 (3.06)</td>
<td>5.00 (1.16)</td>
</tr>
<tr>
<td>E. Monitoring and decision-making</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 1</td>
<td>3.20 (1.92)</td>
<td>6.33 (1.58)</td>
<td>3.75 (0.50)</td>
</tr>
<tr>
<td>Time 2</td>
<td>7.20 (1.64)</td>
<td>7.00 (1.00)</td>
<td>6.75 (1.26)</td>
</tr>
<tr>
<td>F. Management</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 1</td>
<td>10.20 (4.71)</td>
<td>11.33 (2.31)</td>
<td>11.75 (2.22)</td>
</tr>
<tr>
<td>Time 2</td>
<td>14.40 (2.07)</td>
<td>16.00 (1.00)</td>
<td>13.00 (2.16)</td>
</tr>
<tr>
<td>G. Regional level support</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 1</td>
<td>2.80 (1.10)</td>
<td>4.00 (0.00)</td>
<td>2.50 (1.00)</td>
</tr>
<tr>
<td>Time 2</td>
<td>4.00 (0.00)</td>
<td>4.00 (0.00)</td>
<td>3.50 (1.00)</td>
</tr>
<tr>
<td>Overall SET %</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 1</td>
<td>59.77 (19.95)</td>
<td>67.66 (11.66)</td>
<td>62.75 (7.58)</td>
</tr>
<tr>
<td>Time 2</td>
<td>91.26 (8.69)</td>
<td>84.41 (9.98)</td>
<td>79.85 (21.48)</td>
</tr>
</tbody>
</table>

Although the small sample size (total 12 schools) did not allow a statistical test of significance, the pattern of results shows that there were noteworthy increases in scores over time, especially for the primary schools in Phase 1. Improvement was found in all seven SET categories, and the overall SET score was clearly increased from 59.77% to
91.26%. Furthermore, the standard deviation dropped from 19.95 to 8.69, indicating that the initial differences among the schools have become smaller after implementing PBL.

Similarly, for the high schools in Phase 1, the pattern shows improvement in six of the seven categories. The category that did not improve was regional level support, which was initially high (a score of 4 out of 4 which left no room for further increase). The overall SET score was clearly improved, from 67.66% to 84.41%. Hence, although the improvement did not seem to be as impressive as for the primary schools, the high schools in Phase 1 did show noteworthy improvement over time.

For the primary schools in Phase 3, there was improvement in six of the seven categories. For on-going reward system, the initially high score (5.75 out of 6) did not provide room for substantial improvement. As expected, possibly due to a comparatively shorter time span of implementation, the improvement was relatively smaller than the Phase 1 primary schools. However, given the small sample, it was not appropriate to conduct any inferential statistical procedure to scrutinise the difference.

For all three groups, the overall SET scores show substantial increases. The improvement for primary schools in Phase 1 was greatest (from 59.77% to 91.26%), followed by high schools in Phase 1 (from 67.66% to 84.41%), and then the primary schools in Phase 3 (from 62.75% to 79.85%). The pattern for the overall SET scores (in percentages) is presented in Figure 6.2. It appears that primary schools improved more than high schools and Phase 1 schools improved more than Phase 3 schools, but a larger sample would be required to confirm this speculation. In sum, the patterns of the T1-T2 scores indicate clearly that there were improvements in the SET scores over time, irrespective of level and phase of implementation.

![Figure 6.2: Overall SET scores (%) for 2 phases](image)

### 6.3 Teacher self-concept and self-efficacy

To examine whether PBL would have noteworthy impact on teacher self-efficacy, the scores for instruction and management self-efficacy scales in the experimental and control groups were compared. The self-esteem and emotional stability self-concept of the two groups were also compared. The MANOVA with the four constructs did not find any significant between-group difference. The means and standard deviations of scores and the univariate $F$-statistics are presented in Table 6.4.
Both the experimental and control groups had similarly high self-esteem, $F(1, 392) = 0.00, MSE = 0.50$, high emotional stability, $F(1, 392) = 0.21, MSE = 0.53$, very high instruction efficacy, $F(1, 392) = 0.26, MSE = 0.37$ with a mean of 5.24 and 5.28 for the experimental and control groups respectively, and very high management efficacy, $F(1, 392) = 0.01, MSE = 0.42$ with a mean of 5.24 for both groups. None of these comparisons were statistically significant (all $p > .05$). This is an interesting aspect for further research in a future time phase especially when exploring the effects of PBL embedded into classroom settings.

Table 6.4: Means and (Standard Deviations) of teachers’ self-esteem, emotional stability, and instruction and management efficacy scores

<table>
<thead>
<tr>
<th></th>
<th>Experimental</th>
<th>Control</th>
<th>F (1,392df)</th>
<th>MSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-esteem</td>
<td>4.95 (0.71)</td>
<td>4.96 (0.71)</td>
<td>0.00</td>
<td>0.50</td>
</tr>
<tr>
<td>Emotional Stability</td>
<td>4.69 (0.74)</td>
<td>4.65 (0.67)</td>
<td>0.21</td>
<td>0.53</td>
</tr>
<tr>
<td>Instruction</td>
<td>5.24 (0.61)</td>
<td>5.28 (0.59)</td>
<td>0.26</td>
<td>0.37</td>
</tr>
<tr>
<td>Management</td>
<td>5.24 (0.63)</td>
<td>5.24 (0.72)</td>
<td>0.01</td>
<td>0.42</td>
</tr>
</tbody>
</table>

Note: Because of missing data, for this analysis, total $N = 394$. * $p < .05$. ** $p < .001$.

6.4 Student behaviours

Students’ data regarding attendance and suspension from school were collected by DET WSR. This report provides perspectives on data from the schools participating in the research project as well as data reported by the region that includes consideration of all schools. Both attendance and suspension scores are presented in percentages. Suspension is scored by dividing the total suspension occasions by the total enrolment of students in that school for that year. The means and standard deviations of attendance for three phases of PBL implementation and the control group are presented in Table 6.5. The results found no significant difference among the phases and between the experimental and control groups. The main effect of Phase was not statistically significant, $F(3, 23) = 0.62, MSE = 35.75, \eta^2 = .08$. The main effect of time was not statistically significant, $F(3, 69) = 0.13, MSE = 1.03, \eta^2 = .01$. The Phase x Time interaction effect was also not significant, $F(9, 69) = 0.71, MSE = 1.03, \eta^2 = .08$.

For suspension rates, again the results found no significant difference among the phases and between the experimental and control groups. The main effect of Phase was not statistically significant, $F(3, 22) = 0.04, MSE = 60.43, \eta^2 = .01$. The main effect of time was not statistically significant, $F(2, 44) = 0.42, MSE = 2.08, \eta^2 = .02$. The Phase x Time interaction effect was also not significant, $F(6, 44) = 0.27, MSE = 2.08, \eta^2 = .04$. In sum, there was no evidence showing any significant change in student behaviours due to the PBL program. However, the data showing high attendance (mostly over 90%) and low suspension (mostly < 6%) rates suggest that there may be ceiling (for attendance) and floor (for suspension) effects. Probably due to lack of variance among groups, any change in such measures due to intervention effects would not be easily detected. These results should be interpreted with caution due to the limited sample available for analysis.
Table 6.5: Means and (Standard Deviations) of attendance rate in 4 groups at semester 1

<table>
<thead>
<tr>
<th>Year</th>
<th>Control (n=7)</th>
<th>Phase 1 (n=9)</th>
<th>Phase 3 (n=6)</th>
<th>Phase 4 (n=5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>91.32 (3.65)</td>
<td>90.12 (3.44)</td>
<td>91.22 (2.78)</td>
<td>91.86 (4.47)</td>
</tr>
<tr>
<td>2005</td>
<td>91.97 (2.60)</td>
<td>90.05 (2.92)</td>
<td>90.66 (2.19)</td>
<td>92.16 (3.73)</td>
</tr>
<tr>
<td>2006</td>
<td>91.58 (2.33)</td>
<td>90.33 (2.72)</td>
<td>90.16 (3.12)</td>
<td>92.32 (2.81)</td>
</tr>
<tr>
<td>2007</td>
<td>91.63 (2.04)</td>
<td>89.78 (3.76)</td>
<td>90.83 (3.38)</td>
<td>91.92 (3.36)</td>
</tr>
</tbody>
</table>

Note: Scores are in percentages.

Table 6.6: Means and (Standard Deviations) of suspension rate in 4 groups

<table>
<thead>
<tr>
<th>Year</th>
<th>Control (n=7)</th>
<th>Phase 1 (n=8)</th>
<th>Phase 3 (n=6)</th>
<th>Phase 4 (n=5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>4.40 (3.58)</td>
<td>4.96 (3.54)</td>
<td>5.62 (4.36)</td>
<td>5.13 (7.76)</td>
</tr>
<tr>
<td>2006</td>
<td>4.68 (2.90)</td>
<td>5.29 (3.65)</td>
<td>5.28 (4.63)</td>
<td>6.04 (7.70)</td>
</tr>
<tr>
<td>2007</td>
<td>5.12 (3.91)</td>
<td>5.33 (3.90)</td>
<td>5.67 (4.83)</td>
<td>5.38 (5.41)</td>
</tr>
</tbody>
</table>

Note: Scores are in percentages. In Phase 1, one of the schools had missing data and therefore n = 8.

6.5 Student self-concept

The most important concern of the present research is whether the potentially positive effects of PBL could be translated to enhancement of learning outcomes, including psychosocial outcomes such as academic self-concept and school motivation. First, a range of self-concept scales were compared between the experimental (PBL Schools) and control groups (Non-PBL Schools). The means and standard deviations are presented in Table 6.7. The MANOVA results showed that for all the self-concept measures, the experimental group tended to have high scores than the control group. However, of the six measures, only three reached statistical significance at the .05 level. They were self-concept of competency at school, mathematics self-concept, and parent relations self-concept (see Figure 6.3). Nevertheless, although there was support for positive effects of PBL on students’ self-concept (especially academic self-concepts such as school competency and mathematics), these effects seemed to be rather small (effect sizes < .05).

Table 6.7: Means and (Standard Deviations) of students’ self-concepts

<table>
<thead>
<tr>
<th></th>
<th>Experimental</th>
<th>Control</th>
<th>F (2,258df)</th>
<th>MSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>School competency</td>
<td>4.39 (1.04)</td>
<td>4.27 (0.98)</td>
<td>4.59*</td>
<td>1.06</td>
</tr>
<tr>
<td>School affect</td>
<td>4.10 (1.28)</td>
<td>4.04 (1.13)</td>
<td>0.79</td>
<td>1.57</td>
</tr>
<tr>
<td>Maths</td>
<td>3.92 (1.35)</td>
<td>3.77 (1.35)</td>
<td>4.77*</td>
<td>1.82</td>
</tr>
<tr>
<td>English</td>
<td>4.25 (1.18)</td>
<td>4.16 (1.15)</td>
<td>2.50</td>
<td>1.37</td>
</tr>
<tr>
<td>Parent</td>
<td>5.04 (0.97)</td>
<td>4.92 (1.00)</td>
<td>5.86*</td>
<td>0.96</td>
</tr>
<tr>
<td>Emotion</td>
<td>4.33 (0.95)</td>
<td>4.25 (0.91)</td>
<td>2.80</td>
<td>0.88</td>
</tr>
</tbody>
</table>

Note: Because of missing data, for this analysis, total N = 2,681. * p < .05. ** p < .001.
6.6 Student motivation

Another psychosocial determinant of academic success is students’ motivation in learning. Students’ motivation in learning was examined through Martin’s (2003) SMES items in the student survey. MANOVA conducted with the student data revealed that the PBL program had a significant impact on students’ motivation in a range of orientations.

The means and standard deviations are presented in Table 6.8. The MANOVA results showed that for all the six positive motivation measures, the experimental group tended to have high scores than the control group. However, of the six measures, only five reached statistical significance ($p < .05$). They were Belief, Value, Planning, Management and Persistence. For the negative motivation measures, the pattern of results was not so consistent. Of the five negative measures, one showed significant difference between groups, indicating that the experimental group had lower disengagement orientation than control students (see Figures 6.4 and 6.5).

In sum, those who were involved in the PBL program tended to have more positive beliefs and values about schooling, have higher planning and management orientations, be more persistent in learning, and had lower disengagement orientation than those who were not involved in PBL. Whereas there was support for the positive effects of PBL, nevertheless, these effects seemed to be rather small (effect sizes < .05).

Table 6.8: Means and (Standard Deviations) of students’ SMES (Martin, 2003) scores

<table>
<thead>
<tr>
<th></th>
<th>Experimental</th>
<th>Control</th>
<th>F (2,258df)</th>
<th>MSE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N= 1,799</td>
<td>N= 461</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Belief</td>
<td>4.85 0.93</td>
<td>4.69 0.91</td>
<td>11.16**</td>
<td>0.86</td>
</tr>
<tr>
<td>Value</td>
<td>5.03 0.86</td>
<td>4.86 0.84</td>
<td>14.96**</td>
<td>0.73</td>
</tr>
<tr>
<td>Focus</td>
<td>4.97 0.86</td>
<td>4.88 0.85</td>
<td>0.74</td>
<td>0.74</td>
</tr>
<tr>
<td>Planning</td>
<td>3.9 1.31</td>
<td>3.73 1.28</td>
<td>6.81*</td>
<td>1.69</td>
</tr>
<tr>
<td>Management</td>
<td>4.3 1.17</td>
<td>4.14 1.13</td>
<td>6.99*</td>
<td>1.36</td>
</tr>
<tr>
<td>Persistence</td>
<td>4.42 1.05</td>
<td>4.23 1.02</td>
<td>12.02**</td>
<td>1.09</td>
</tr>
<tr>
<td></td>
<td>Experimental</td>
<td>Control</td>
<td>F (2,258df)</td>
<td>MSE</td>
</tr>
<tr>
<td>----------------</td>
<td>--------------</td>
<td>---------</td>
<td>-------------</td>
<td>-----</td>
</tr>
<tr>
<td>Anxiety</td>
<td>3.6</td>
<td>3.64</td>
<td>0.46</td>
<td>1.26</td>
</tr>
<tr>
<td>Low Control</td>
<td>2.8</td>
<td>2.85</td>
<td>0.85</td>
<td>1.28</td>
</tr>
<tr>
<td>Avoidance</td>
<td>3.35</td>
<td>3.32</td>
<td>1.73</td>
<td>1.73</td>
</tr>
<tr>
<td>Self-sabotage</td>
<td>2.53</td>
<td>2.58</td>
<td>0.9</td>
<td>1.17</td>
</tr>
<tr>
<td>Disengagement</td>
<td>2.35</td>
<td>2.52</td>
<td>8.77*</td>
<td>1.28</td>
</tr>
</tbody>
</table>

Note: Because of missing data, for this analysis, total N = 2,264. * p < .05. ** p < .001.

Figure 6.4: SMES scores in 2 groups

Figure 6.5: SMES scores in 2 groups

6.7 Parent satisfaction
Parent data were obtained from 24 schools (N = 374). Of these parents, 81.6% were mothers, 13.1% were fathers, and the other 5.3% were grandparents, guardians, etc. Most of the respondents were female (84.5%). Their children’s gender were reported to be
52.6% girls, which was reasonably consistent with the student data. Of these children, 5.9% were reported to be either disabled or having learning difficulty. In the present sample, 1.9% of the parents were Aboriginal. Most of these parents spoke English (59.4% always and 17.7% usually spoke English at home), but 32.8% also used languages other than English at home. Some of these parents had lived in Australia for only a few months whereas some others have lived here for over 45 years, and more than 20% had lived in Australia for less than 10 years.

The parents’ perceptions of PBL were examined by asking them to respond to the following three survey items on a six-point response scale (1 = disagree strongly to 6 = agree strongly):

1. The PBL project in my child’s school is useful.
2. Overall, I’m satisfied with PBL operating in the school.
3. I would recommend PBL to other parents or community members.

The percentages of favourable responses by parents in three phases of PBL implementation are presented in Table 6.9.

A general indicator of the quality of output is the degree of satisfaction on the part of the customers (ACEA NSW & NSW DSE, 1996; Fornell, Johnson, Anderson, Cha, & Bryant, 1996; Ryan, Buzas, & Ramaswamy, 1995; Wong, Fung, & Yeung, 2000; Wong & Yeung, 2003). A typical example of a well-documented and validated measure of customer satisfaction is the American Customer Satisfaction Index (ACSI) that is used worldwide (Anderson & Fornell, 2000; Fornell et al., 1996). The ACSI uses a 0-100 scale with higher ratings reflecting a better customer satisfaction rate. The Federal US Government, for example, had an overall rating of 68.6 in the year 1999 and again in 2000 (http://www.theacsi.org/model.htm). Thus, targeting a satisfaction rate of around 70% based on data from various services and products in the US and many other countries, the US Department of Education (2000) has used their 72.9% satisfaction rate as evidence of quality output in their student financial assistance service.

Table 6.9: Percentages of parents who agreed to the 3 items

<table>
<thead>
<tr>
<th>Phase 1</th>
<th>Phase 3</th>
<th>Phase 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>N = 172</td>
<td>N = 37</td>
<td>N = 50</td>
</tr>
<tr>
<td>Useful</td>
<td>84.70%</td>
<td>83.80%</td>
</tr>
<tr>
<td>Satisfied</td>
<td>87.80%</td>
<td>78.40%</td>
</tr>
<tr>
<td>Recommend</td>
<td>88.10%</td>
<td>75.00%</td>
</tr>
</tbody>
</table>

*Note: Because of missing data, for this analysis, total N = 259.*

Data collected from students, however, revealed a different pattern. Parallel items were used for students using the same six-point response scale (1 = disagree strongly to 6 = agree strongly):

1. PBL in my school is useful.
2. Overall, I’m satisfied with PBL operating in my school.
3. I would recommend PBL to other students.

The percentages of favourable responses by students in three phases of PBL implementation are presented in Table 6.10. The results showed that students in Phase 1 schools found the PBL program useful (72.0%), they were satisfied with the
implementation (73.5%), and they would recommend the program to other students (71.1%). These percentages all met the generally accepted 70% criterion level reflecting quality output of educational programs (Anderson & Fornell, 2000; Fornell et al., 1996; US Department of Education, 2000; Wong & Yeung, 2003). Nevertheless, the percentages for Phases 3 and 4 were much lower than for Phase 1 (all < 50%).

The means and standard deviations in three phases are presented in Table 6.11. MANOVA results found that group differences were statistically significant for Useful, $F(2, 1678) = 118.26, MSE = 2.72$; Satisfied, $F(2, 1678) = 117.77, MSE = 2.52$, Recommend, $F(2, 1678) = 128.99, MSE = 2.73$. The results suggest that it may take time for students to find PBL useful, feel satisfied with the implementation and recommend it to other people.

### 6.8 Student satisfaction

#### Table 6.10: Percentages of students who agreed to the 3 items

<table>
<thead>
<tr>
<th></th>
<th>Phase 1</th>
<th>Phase 3</th>
<th>Phase 4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$N = 1,145$</td>
<td>$N = 461$</td>
<td>$N = 75$</td>
</tr>
<tr>
<td>Useful</td>
<td>72.00%</td>
<td>37.30%</td>
<td>30.7%</td>
</tr>
<tr>
<td>Satisfied</td>
<td>73.50%</td>
<td>42.70%</td>
<td>34.7%</td>
</tr>
<tr>
<td>Recommend</td>
<td>71.10%</td>
<td>33.80%</td>
<td>32.0%</td>
</tr>
</tbody>
</table>

*Note: Because of missing data, for this analysis, total $N = 1,681$.

#### Table 6.11: Means and (Standard Deviations) of students’ evaluation scores

<table>
<thead>
<tr>
<th></th>
<th>Phase 1</th>
<th>Phase 3</th>
<th>Phase 4</th>
<th>$F(2,1678df)$</th>
<th>MSE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$N = 1,145$</td>
<td>$N = 461$</td>
<td>$N = 75$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Useful</td>
<td>4.24 (1.64)</td>
<td>2.94 (1.68)</td>
<td>2.76 (1.66)</td>
<td>118.26**</td>
<td>2.72</td>
</tr>
<tr>
<td>Satisfied</td>
<td>4.28 (1.56)</td>
<td>3.06 (1.66)</td>
<td>2.73 (1.55)</td>
<td>117.77**</td>
<td>2.52</td>
</tr>
<tr>
<td>Recommend</td>
<td>4.23 (1.66)</td>
<td>2.85 (1.64)</td>
<td>2.81 (1.59)</td>
<td>128.99**</td>
<td>2.73</td>
</tr>
</tbody>
</table>

*Note: Because of missing data, for this analysis, total $N = 1,681$. * $p < .05$. ** $p < .001$.

### 6.9 Staff satisfaction

The perceptions of school staff toward PBL were examined using parallel items used for both parents and students. The three identical items were responded to using the six-point response scale (1 = disagree strongly to 6 = agree strongly):

a. PBL in my school is useful.

b. Overall, I’m satisfied with PBL operating in my school.

c. I would recommend PBL to other staff.

The percentages of favourable responses by students in three phases of PBL implementation are presented in Table 6.12. The results showed that students in Phase 1 schools found the PBL program useful (94.8%), they were satisfied with the implementation (86.0%), and they would recommend the program to other students (92.4%). These percentages all exceed the generally accepted 70% criterion level reflecting quality output of educational programs (Anderson & Fornell, 2000; Fornell et
al., 1996; US Department of Education, 2000; Wong & Yeung, 2003). Interestingly, the percentages for Phases 3 were lower than for Phase 1 however, the percentages for Phase 4 were higher compared with Phase 1. Overall staff who have implemented PBL believe the approach is worthwhile and would recommend it to others.

**Table 6.12: Percentages of staff who agreed to the 3 items**

<table>
<thead>
<tr>
<th></th>
<th>Phase 1</th>
<th>Phase 3</th>
<th>Phase 4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$N = 173$</td>
<td>$N = 89$</td>
<td>$N = 40$</td>
</tr>
<tr>
<td>Useful</td>
<td>94.80%</td>
<td>89.90%</td>
<td>97.50%</td>
</tr>
<tr>
<td>Satisfied</td>
<td>86.00%</td>
<td>84.10%</td>
<td>86.50%</td>
</tr>
<tr>
<td>Recommend</td>
<td>92.40%</td>
<td>87.50%</td>
<td>97.40%</td>
</tr>
</tbody>
</table>

*Note: Because of missing data, for this analysis, total $N = 302.*
Chapter 7
Findings: PBL attitudes towards learning and behaviour

7.1 Introduction
This chapter responds to the third research question, how does the implementation of Positive Behaviour for Learning (PBL) influence the attitudes of school staff, students and parents towards learning and behaviour? It draws on evidence gathered from staff, students and parents and considers how the attitudes and opinions revealed interact with the processes and intentions of the PBL initiative. It considers the distinctive features of PBL as well as its effects as a systemic process, its advocacy of positive support and reinforcement.

7.2 Effects of systemic process on attitudes
One of the distinctive features of PBL is that it is systemically implemented in schools across the Western Sydney Region (WSR). This is demonstrated by the whole school approach adopted, the fidelity of implementation from its origins, the use of a coach to keep the process on track and the consistent use of PBL language.

PBL is a whole school systems approach to organisational practices, data collection and evaluation using positive strategies to change student behaviour. In schools, PBL resources provide a focused and consistent approach, increasing the likelihood that socially appropriate behaviour will occur. Documentation distributed throughout the school community to teachers, students and parents outlines the PBL approach. As a teacher at Phase 1.1 School said:

[PBL] is addressed at staff meetings. Benefits are sold in terms of a whole school approach. … It has to be consistent across the school – a similar standard.

Training at a regional level has focused on supporting schools’ to build systems of universal prevention that reduce the occurrence of inappropriate social and learning behaviours. At the early stages of this process schools are systematically guided to address these issues in the context of school-wide and non-classroom settings.

7.2.1 Influence on behaviour management practices and attitudes
When schools implement PBL it begins to alter teachers’ perceptions of behaviour and how behaviour problems are dealt with. The systemic, whole-school nature of PBL supports teachers dealing with behaviour in the classroom. The fieldwork schools viewed PBL as a system to promote consistency so that there would be a reduction in overall office referrals. The result is that teachers deal with minor behaviour problems instead of referring them.

At one school, this whole-school approach provided a mechanism for getting ‘minor student offences off the principal’s plate’. Sending only major cases for referral and consistency in office referrals was implemented at the school as part of the PBL process. Explicit and consistent approaches to behaviour prevention and using data to make decisions about these approaches provided a benchmark of good leadership practice in
that classroom teachers managed minor behavioural issues themselves.

A proactive approach to behaviour management was demonstrated at Phase 3.1 School where there were major problems with social discipline in the toilet block. Students were throwing wet paper, squirting water, and using graffiti. The response of staff was to teach about the expectations of behaviour in the toilet block and have students make posters about appropriate behaviour in this setting. Teachers collaboratively decided to actively supervise the toilets whilst on playground duty. The views of the School PBL Team, teachers, principal and students corroborated the report of one teacher who said:

We were looking at safety and respect in the beginning, looking at whether they are showing safety in the playground and safety and respect in the toilets. After that we went back and looked at the data and found that overall behaviour had improved.

This example was used as a specific focus for PBL citing it as the main reason for improvement in behaviour in the toilets. In addition, PBL at this school had other observable effects. Students were seen to be more calm, settled and happy. This, in turn, ‘made the teachers happier’:

Yes, like I said it seems to have made a positive difference. Even in the playground children seem more settled. I think even the whole community – parents – might not have realised what the rules are. ... I think having the whole program has made everyone have a more positive experience (Teacher at Phase 3.1 School).

It has made a big difference actually. They are more settled also, because we have got posters in the room and also outside, everywhere reminding them of citizenship and there is one in the room right in front of where we sit so it is staring at them everyday. … They are much more settled. And if they are happy and safe in the playground they are settled and then it doesn’t put a damper on the classroom (Special Needs Teacher at Phase 3.1 School).

Schools typically implemented PBL in non-classroom settings, and apart from explicit teaching of behaviour, they have not systematically developed a classroom strategy for PBL. However Phase 1.2 School had linked PBL to ‘Quality Teaching’ implying that some effect on classroom teaching was expected. In addition, there is some indication that teachers had taken the principles derived from the PBL approach into their classrooms, as discussed in chapter 5. Some examples are cited below:

I use it every time I have to reprimand a student. I always refer back to the sign and make them stop and say are you using any of those points, and I always refer to it. That is what my head teacher suggested I do and it has been really positive in my classroom (Teacher at Phase 1.1 School).

We have been looking at putting your hand up before speaking in the classroom, showing respect to the teacher and the other students. A role-play about someone calling out all the time and they are all talking over the top of each other. Then at the end we would stop and get the students to give their opinions, what to do and why this happens, and make the choices about their learning (Teacher at Phase 1.2 School).
From these responses it seems evident that teachers appreciate the benefits of PBL, and that it has changed their approach to dealing with children’s behaviour issues. There is ownership of the need to actively teach behavioural expectations and of showing children explicitly what these behaviours look like. This is highly consistent with the PBIS/PBL system and its underpinnings in Applied Behaviour Analysis (Carr et al, 2002). While the teachers quoted above were not asked about their previous orientations to behaviour management, it can be inferred from their comments that there has been a shift towards taking a more proactive and positive approach rather than simply administering punishment when misbehaviour occurs (OSEP, 2004).

7.2.2 Perceived limits to impact of PBL

Although an overall decrease in office referrals was reported staff in the fieldwork schools indicated that a small core group of students continue to be referred. A teacher at a Phase 1 school noted that:

There are fewer suspensions. This hasn’t flowed through to the work ethic yet and there is no effect on kids with major problems. There is an underlying group that is still there. PBL doesn’t seem to get to those kids.

A teacher at another fieldwork school made a similar observation:

Clearly this child was beyond the eighty percent level of universal prevention, and would most likely have been in the five percent – at the pointy end of the pyramid. It was apparent that PBL was not providing solutions for such kids.

These observations of the limits to what can be achieved at the universal level within PBL are consistent with the early stages of implementation. They underscore the need to continue the implementation by introducing procedures and actions appropriate to targeted group interventions (tier 2) and intensive individualised interventions (tier 3) (see Figure 1.2, p.4).

7.3 Attitudes to learning

While the findings outlined above speak to changes in teachers’ orientations to teaching behaviours, the connections between PBL and academic learning were understood to be implicit rather than direct. One of the school’s coaches articulated the value of getting the basics of PBL in place as a means of establishing positive behaviours for classroom learning:

Providing they’ve got the basics there, where the language of PBL is already in all those outside settings, when it does come into the classroom, it’s just a natural transition. They’re already talking the language of PBL – the kids, the teachers, everyone has a clear understanding.

The Principal at Phase 1.1 School said:

I’ve always believed there is a firm link between good behaviour and good learning. If you have the two of them operating in the classroom you’re going to have greater success with kids. I suppose that’s the two sides of the plan coming together.

Despite these perceptions by a coach and a principal, increases in teacher efficacy were not demonstrated in the PBL schools of the study. As noted in chapter 6, teacher efficacy scores were already quite high for both the PBL and control groups. This suggests the
possibility that behaviour management practices were already good for most teachers and that PBL has value-added a systemic whole school structure that establishes consistency. Another possibility is that teachers do not perceive behaviour management as central to their teaching competence but rather see good teaching and learning as dependent on other factors. A third alternative is simply that the current schoolwide focus of PBL implementation is not perceived as having any impact on the classroom practice of teaching. These considerations remain to be teased out in further research.

One principal cited a ‘glaring omission in the [school’s] expectations [prior to PBL implementation] – there was nothing about learning. It was all about safety and respect’. This school’s PBL matrix references the compliant work ethic of being a learner such as arriving on time for class, achieving their best and bringing equipment. These learner behaviours provide social support and student direction as a means to improve the quality of the learning environment, however, such teacher expectations do not address the kinds of teaching and learning required to enhance students’ intellectual and social engagement in classroom learning. In the same interview with the principal about learning there was a great deal of discussion about the school plans for ‘raising the bar and closing the gap’ by ‘increasing the performance of our kids’ but as yet, as one teacher at Phase 1.1 School described, the students’ work ethic still warrants improvement:

We still use negative reinforcement for non-work. ... Kids don’t make the connection between coming to school and work – school is for socialising, not for work – that’s something that happens when you leave school.

It is a common misunderstanding of behavioural terminology that ‘negative reinforcement’ is incorrectly used to refer to punishment. Even substituting the correct term in this quote, the scenario needs to shift toward engaging children in learning. The evidence indicates that PBL has had an influence on the attitudes of teachers and students towards behaviour, however, on the basis of these comments from schools and on the limited evidence derived from the analysis of the survey material, the influence on attitudes to learning has so far been mixed.

At Phase 1.2 School the influence on learning has been most obvious. This is because strategies and attitudes for playground behaviour provided a conduit to classroom behaviour and to learning. A teacher from the school confirms:

It’s the consistency. We are all talking the same language. ... A lot of teachers have adopted them [3 PBL rules] as their classroom rules … It takes into consideration the style of how a child learns. In the past we would just verbalise it, but now in demonstrating it, visualising it, you can actually see that line at the canteen.

At another school, the Principal spoke about the school’s academic gains and how these have been achieved:

We have been doing a fair bit of work to get that curriculum alignment. (The Deputy) talks a lot about curriculum alignment and he indicates that if you can get this happening you can move kids up a standard deviation. So we’ve been doing a lot of work on ‘what are the verbs, how do we reflect these in assignments, how do we reflect these in programming.’ That’s been quite beneficial. Our image is a jigsaw puzzle because the pieces are inter-related and what you do in one area is going to impact on the other. Clearly for us, literacy is a huge issue – has become so in more recent time. Without literacy, kids won’t be able to access or express the curriculum. With the boys, that leads into the behaviour.
The Principal reveals a developing connection between learning and behaviour. Behaviour is seen as affecting learning outcomes, including literacy as measured by statewide testing. Then literacy is tied to behaviour outcomes, where boys particularly are not achieving. The Principal quotes figures about the improvements the school has made in academic performance in HSC exams, crediting PBL with this change:

I think what we’re doing is, to use the terminology of our Regional Director, ‘raising the bar and closing the gap.’ So I can actually show you what we’ve been doing. In 2002-2004 we set ourselves the target of 50% of kids getting in the higher bands in the Higher School Certificate. We achieved 52%. This trimester we’re aiming for 55% of kids and we’re currently 55.5%. … We’re continually looking at our processes and improve what we’re doing. PBL to me wasn’t an add-on. This was a way to support the directions in which the school was already going.

The Principal clearly makes the point that this school has a focus on learning as demonstrated by improved exam targets and performance. Even though the setting of targets and employing strategies to meet academic targets was in place before PBL was implemented, it can be argued that the school is focused on improving academic results and is willing to work hard to support learning. Thus PBL has complemented a process already in place. This school has well developed plans to connect classroom learning to behaviour, rather than the other way around. They are employing a strategy of starting with an emphasis on learning and then incorporating behavioural strategies associated with PBL to complement and support an existing program. It can also be argued that this is consistent with the fidelity of PBL because PBL is meant to integrate and complement existing contexts.

In contrast, another of the fieldwork schools continued to place emphasis on non-classroom behaviour prevention. The school had mainly worked through playground issues and as such did not expect PBL outcomes in terms of classroom learning at this stage even though instruction of expected behaviours was undertaken as a classroom activity. Some teachers expressed a view that students were more on task because they were more settled in the classroom and the Principal concurred with this. One of the tensions of PBL is the perceived relationship between behaviour and learning and how that may be feeding into traditional teaching expectations that quiet, well-behaved students somehow promote learning. A Year 5 student noted that PBL has made a difference in the classroom because ‘it’s a lot quieter’. Another student’s response about classroom behaviour and learning was to say, “We just sit down and listen to what the teacher’s saying.”

7.4 Value of support

The three PBL fieldwork schools had the full support of the school executive in participating in this regional initiative and in forming school PBL leadership teams. This is one of the key requirements in implementing PBL in a school:

The Deputy initiated PBL and he is very enthusiastic. He also has a lot of respect so, if he says it’s good – it’s good (teacher at a fieldwork school).

When asked what had supported the implementation of PBL at his school, one of the school coaches noted that ‘there was good support from the executive’ while a member of another school’s PBL implementation team said ‘the Principal is always involved. He doesn’t come across as a Principal at the PBL Leadership meetings’. This evidence of attitudinal change supporting organisational change is a key beneficial impact of PBL.
The change taking place is in terms of the relationships between staff and between schools and the Region. From interviews with principals of each of the three schools it is clear that they had strong involvement in PBL and were very enthusiastic about the process. All had put considerable work into the adoption and acceptance of PBL and the ongoing development of strategies to ensure the effectiveness of the program. The evidence shows that not only had it been a school-wide decision to become involved in PBL, as required when PBL is introduced in a school, but the school executive is seen to support the school PBL leadership team. In general the quality of leadership was regarded as a significant factor in the successful implementation of PBL in schools.

**7.5 Effects on children’s attitudes**

Within the schools, consistent application of the PBL expectations has begun to change children’s behaviour. The following account from a Special Education Teacher at a primary school demonstrates the power of consistent, positive discipline practices in bringing about change in a child with learning and behavioural difficulties.

I just stuck to the language, ‘You’re not being safe, you’re not being respectful, you’re not being responsible’. So you would think a little six year old with some [learning] delays is not going to pick up on that. Within a week, I can say that child was responding to that language. I’d say, ‘Is that being safe?’ Because you’d go to help him and he’d kick, bite you and he’d say, ‘I don’t like you.’ After two weeks after saying, ‘Is that being respectful?’ and he’d say, ‘No’. It’s been a gradual thing.

While the application of PBL appears to have provided a dramatic success for this child, it is less clear what the benefits may be for students whose behaviour is not at issue but whose learning may nonetheless benefit from a renewed learning focus. Though, as noted in the previous chapter, PBL effects on students’ self-concept were limited and those for motivation were small, when taken together this trend suggests that PBL implementation supports positive attitudes to learning. Further research is required to ascertain whether such changes are maintained and whether they will in turn lead to increases in students’ academic performance.

**7.6 The meaning of ‘positive’**

One of the objectives of the PBIS blueprint (2004) referenced for the implementation of PBL is to create a positive classroom climate for learning. This suggests a very clear link between learning and positive support. As shown in the example above, ‘positive’ support facilitates a shift from reactive approaches to managing problem behaviour to preventative and proactive approaches, which enable students to understand that ‘positive behaviour leads to student success more effectively than problem behaviour’ (Coach).

Schools have interpreted this view of ‘positive’ consistently with a high degree of congruence between what they say they are doing and the physical evidence observed in schools. For example, one of the schools developed a hands-off policy as a strategy for reducing playground referrals and there were posters around the school stating ‘Keep your hands and feet to yourself’. Teachers spoke about the school posters and written material and how this is reinforcing ‘positive’ behaviour:

I have noticed that positive behaviour has been reinforced. More certificates are handed out and there is better attendance at school. There is a reward system for attendance … there is better student behaviour overall.
More time is spent at assembly acknowledging various activities. Assembly is a good place to show student involvement and that has definitely increased.

A number of schools, but in particular the fieldwork schools, displayed posters and printed material about school-wide expectations around their schools. The printed material was evidence of a highly visible PBL presence and reinforced a view of ‘positive’ support. A more comprehensive example of what schools mean by ‘positive’ is evident in the excerpt from the schools’ PBL matrices in Tables 7.1 and 7.2 below:

**Table 7.1: Positive behaviour expectations matrix of a primary school**

<table>
<thead>
<tr>
<th></th>
<th>Safe</th>
<th>Responsible</th>
<th>Respectful</th>
</tr>
</thead>
<tbody>
<tr>
<td>All settings</td>
<td>• Looking</td>
<td>• Report any problems to staff</td>
<td>• Speaking politely (friendly voice)</td>
</tr>
<tr>
<td></td>
<td>• Thinking</td>
<td>• Look after school environment</td>
<td>• Caring for people and property</td>
</tr>
<tr>
<td></td>
<td>• Active listening</td>
<td>• Cooperate with others</td>
<td>• Follow staff direction</td>
</tr>
<tr>
<td></td>
<td>• Moving Calmly</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Classroom</td>
<td>• Moving calmly</td>
<td>• Caring for own and others property</td>
<td>• Cooperating with others</td>
</tr>
<tr>
<td></td>
<td>• Waiting for the teacher to be in the room before entering</td>
<td>• Neat and tidy</td>
<td>• Listening to others</td>
</tr>
<tr>
<td></td>
<td>• Active listening</td>
<td>• Making ‘smart’ choices</td>
<td>• Using a friendly voice</td>
</tr>
<tr>
<td></td>
<td>• Following teacher direction</td>
<td>• Cooperate and participate in the learning process</td>
<td>• Tolerance and compassion</td>
</tr>
</tbody>
</table>

The matrices in these tables above identify positive behaviour expectations negotiated at the school level. Table 7.1 presents the expectations to the whole school community of students, staff and parents. PBL provides a framework for students to consider how they perceive their social interactions and how others view them and how to adjust their behaviour when the school’s expectations are breached. This implies an inclusive view of what is meant by ‘positive’. It could be argued that schools have effectively assimilated PBL into their existing structures. For example, at a Phase 1 school one of the checks Roll Supervisors make is: ‘Diaries – have them each day and are maintained properly.’ Although this expectation is stated in ‘positive’ terms it is an elementary response to
achieving an outcome where students take greater responsibility for their own learning.

When interviewed, a primary school student gave an example of a positive view that ‘the teacher was nicer’. After a Year Three student explained the school’s three PBL expectations to another student ‘who wasn’t thinking positively’ she then interacted successfully in the classroom. Staff interviews at another school showed clearly that teachers did not consider ‘positive’ was being universally incorporated:

> We have to try and be positive all the time. Some kids are so much of a challenge that it’s hard to stay positive all the time.

> There are fewer suspensions. This hasn’t flowed through to the work ethic yet ... . The work ethic is still poor. We still use negative reinforcement for non-work.

The ramifications of this multiplicity of understandings of ‘positive’ are critical since the use of this term is fundamental to PBL’s identity. If this ‘driver’ is operationalised in schools only at a surface level it risks student engagement and may impede schools’ capacity to deal effectively with students’ challenging behaviours. Overall, the evidence would suggest that ‘positive’ as a descriptor of the PBL process needs continual interrogation at the school level. At this stage of PBL implementation there are indicators of a surface interpretation of ‘positive’ such as just adding ‘please’ to demands of students and that a pedagogical and cultural shift by schools to a PBL framework emphasising shared values in a ‘positive’ learning environment (see Table 2.1) may still need to be addressed.

### 7.7 Communicating PBL to students, teachers and parents

The quantitative data showed that students in PBL schools valued school more than those who were not in the program. It was also shown that teachers’ self-efficacy (beliefs about their capabilities as teachers) was the same whether they were in PBL schools or not.

The students at the primary schools connected with PBL through their enthusiastic participation, and the consistency and simplicity with which the staff applied their school’s behaviour expectations. They knew about the PBL expectations and were keen to behave well, especially in the playground. The students thought making the posters about behaving well in the toilets was interesting and fun. However, as the students were not able to make connections with other teaching and wellbeing initiatives operating concurrently within the school, this could be evidence of the flexibility of PBL systems. The students at a high school knew about PBL but were not so enthusiastic about it. The older students at this school were more aware of PBL and made connections with the anti-bullying program and with Peer Support strategies. Most students knew that PBL promoted better behaviour.

They said:

> They’re listening, not messing around and disturbing the class. … We just sit down and listen to what the teacher’s saying.

Overall, the students in all three schools were aware of the implementation of PBL in their school community. However, making connections between PBL processes and the purpose of PBL varied. Some Year Three students confided what PBL meant to them:
Be happy.
It’s easy to remember. Not a whole list of rules.

All three schools had communicated the PBL program to parents. However, all schools were aware of the need for more parental involvement. This was confirmed by a teacher at one school who saw involving parents more in PBL was a challenge:

I think probably getting more parental involvement, I think because the parents tend not to be that involved. I don’t know whether it’s a cultural thing, or this school. I find we get the same parents … it has given them an understanding of the program but I am not sure whether if we had another workshop … a few [more] would come.

The PBL Team at another school thought that parents knew about PBL and those who were involved in its implementation were similarly committed to other school initiatives. A teacher at one of the primary schools speculated that some parents view any discipline program as authoritarian in nature, and that teachers are just ‘getting at them’, the students. The following exchange occurred between teachers about parental involvement in PBL:

Parents don’t have as much understanding as to what they should know. … Parents can’t understand those three words; do they make sense together – ‘Positive behaviour for learning’. It’s not a sentence. … I think there’s still a lack of knowledge that positive behaviour can go with learning. (They think) they’re two different things. How could one go with the other?

However, this school had parent membership of the school’s PBL Leadership Team who actively contributed to the school change agenda. There were also comments by parents who said:

Parent 1: When I talked to other parents about it, ‘Safety, Respect, Responsibility’, they said, “I know what you’re talking about”. When I read about it in the newsletter the first few times it had an impact on me. … Fantastic. SRR [Safety, Respect, Responsibility] is a great strategy for checking yourself, your behaviour.

Parent 2: Great values for life and everything you do.

This suggests that parents had an understanding of core expectations. However, despite many efforts to inform parents more fully, their understanding and interest was mixed. When this view was put to teachers the response was, ‘that’s difficult to answer because there is not a lot of contact with parents’. Support for cultivating positive relationships between schools and parents is not articulated in the PBIS blueprint. Yet positive parent-school partnerships have been consistently found to promote both social competence and academic achievement in children (e.g., Desforges & Abouchaar, 2003).

The effect of implementing PBL on the school communities was generally positive.
7.8 Summary

This chapter discussed the influence of PBL on the attitudes of school staff, students and parents towards student behaviour and learning. It drew on evidence from the three fieldwork schools and related this to findings from the survey analysis that dealt with attitudinal change. PBL was shown to be an advocate for positive support, although the multiperspective understandings of the term ‘positive’ require further investigation. A variety of narratives give an indication of how PBL is communicated to the broader school community to allay parental scepticism and advocate participation in the process. PBL was shown to have an influence on student behaviour and learning and changes to school culture.

This chapter showed how implementing PBL in schools can help to shift teachers’ perceptions of behaviour and lead to improved ways of dealing with student behaviours. It also raised questions about the ways that PBL may be interpreted in some schools to reinforce traditional expectations that quiet, well behaved students will learn. This chapter suggested that there is a need to promote a more comprehensive understanding of the theoretical assumptions and underlying principles behind PBL.
Chapter 8
Findings: Translation of PBIS to PBL

8.1 Introduction

This chapter responds to the final research question investigating what changes were made to the Positive Behaviour Interventions and Supports (PBIS) model at a school and regional level as part of implementing Positive Behaviour for Learning (PBL). The reasons for these changes and their effects, expected or unexpected, also inform the inquiry. Distinctive features of the adaptation of PBL during the Western Sydney Region’s (WSR) systemic PBL implementation of whole school universal prevention of inappropriate social behaviours and learning support are analysed in terms of cultural and contextual factors. This analysis draws on focus group discussions and interviews with the Regional Leadership team, four of its members and Tim Lewis, PBS consultant from the University of Missouri. In addition, the PBIS document, School-wide Positive Behaviour Support implementers’ blueprint and self-assessment (OSEP, 2004), minutes of regional leadership meetings and planning materials were examined.

8.2 Changing terminology: PBIS to PBL

Arguably the most significant change in adapting the PBIS model has been its change of title to PBL. This was initiated at the regional level as a means of engaging schools. The Regional Coordinator explained: “The purpose of the name change was to want schools to own it, to take it on.” It was a pragmatic move as well as an effort to contextualise PBL in relation to regional strategic goals. Previous practice of ‘intensive behaviour support’ had been localised, frequently offered unsystematically, and focussed on individual students and classrooms. It lacked a systemic approach that would engage whole schools and had been found to be unsustainable. Pragmatically, therefore, it was felt to be important to differentiate the PBIS approach from this previous practice.

A significant initial decision when translating PBIS to PBL concerned the make-up of the school-based leadership teams. A member of the Regional PBL Leadership Team recounts:

When we were originally planning to establish leadership teams in schools to look at PBL we had a discussion as to whether it should be a learning support team or a PBL team. … we did encourage schools to develop a PBL team because the conceptual battle to get schools from how they perceived a learning support team to how we wanted a PBL team to function was so different.

A principal member of the Regional Leadership Team emphasised that, “Changing the name to PBL … symbolised contextualisation.” The emphasis on learning, as we have seen in previous chapters, was significant not only to the regional strategic plan, but also to the highly regarded Quality Teaching model (NSW DET, 2003) that seeks to promote teachers’ professional expertise. The focus on the Quality Teaching was clearly uppermost at two of the fieldwork schools. Having invested a great deal of time and effort in professional development, team-building and ongoing mentoring of staff to build their teaching and learning focus, the principals along with their staff teams claimed that any approach to behaviour must be in service of their orientation to learning. It was on
this basis that one of the schools proceeded with PBL and has subsequently become a flagship school for the initiative.

8.2.1 Translating PBL

Despite its insistence on prioritising learning in its initial delivery of PBL at the universal level of school-wide and non-classroom settings, DET WSR did little to modify the approach and emphasis presented in PBIS. In terms of classroom learning, teachers in the fieldwork schools applied their school’s PBL expectations as a way of developing quality learning environments in which students and teachers could feel respected and safe. To determine whether the students in the classroom also flourish academically as a result of these heightened PBL practices will require further longitudinal evidence.

When first establishing PBL in its schools DET WSR used material from the US PBIS flyers with no identifiable difference in the espoused aims. In terms of classroom learning, teachers in the fieldwork schools applied their school’s PBL expectations as a way of developing quality learning environments in which students and teachers could feel respected and safe. To determine whether the students in the classroom also flourish academically as a result of these heightened PBL practices will require further longitudinal evidence.

When first establishing PBL in its schools DET WSR used material from the US PBIS flyers with no identifiable difference in the espoused aims. The prevailing view at the regional level is that there has been no significant change to the PBIS model. The Regional Director was of the opinion that any changes were merely cosmetic:

PBIS in the US, PBL in WSR. Cultural artefacts had to be modified to sit comfortably, for example, the terminology. This is cosmetic. Research in the US meant that the core of it did not have to be changed, only the margins changed.

In terms of what is implemented as PBL and how it is implemented this appears to be demonstrably the case. The DET WSR team has been scrupulous in their efforts to follow the blueprint outlined for PBIS.

Examples of language amendments in response to Australian schools’ culture are minor changes such as from the US ‘administrator’ to the Australian ‘principal’; from ‘playground supervisor’ to ‘teacher’; from ‘office referrals’ to ‘referrals to supervisors’; ‘bathroom’ to ‘toilet’; and from ‘hallways’ to ‘corridors’. In some cases the need to contextualise had meant changing terms used in the SET surveys, or in data collection programs. Changes to language were not reported as a challenge to PBL implementation.

Language and functional changes to the US-managed School Wide Information Systems (SWIS) database are being negotiated by WSR to adapt the database to Australian conditions. SWIS, when tested and put into production in the Region, will help PBL schools in their collection of student behavioural data and its analysis. Examples of negotiated modifications to the US database are adjusting the school year to begin in January, replacing ‘district’ with ‘region’, inserting a provision for a WSR school to list up to five expectations, which then can be linked to referrals and the additional field of ‘Learning Support Team referral’. These and other modifications provide a functional capture and measurement tool translated for the WSR schools’ context.

Though these adaptations of language appear to be simple matters of translation, at the school level the adoption of distinctive language for each individual school aids in developing ownership of the initiative as well as in its implementation. For example, PBL is identified at one school as ‘<school name> Pride’; at another it is ‘CARS’ – Citizenship, Achievement, Respect, Safety. Much enthusiasm across the school community was generated by an art competition for the CARS logo, which enhanced participation and cohesiveness across the school community. CARS was negotiated to be very similar to a nearby PBL partner school. Emphasis on academic achievement was also evident at one of the high schools in its PBL expectations, which were: Be Safe, Be Respectful, Be a Learner. At another of the schools the PBL school-wide expectations posters titled Safe, Responsible, Respectful were mounted in sponsored durable covering
to survive the conditions of its many outdoor locations. Within the school context, the different language of PBL expectations demonstrate the flexibility inherent in this systems process where schools are expected to customise the ways they integrate behavioural and academic success for all of their students.

On the surface, these amendments appear minimal, and oriented mainly to minor adjustments of language. However, the extent to which schools have been able not only to find a common language, but to define the meaning and intention they give to PBL has helped to shape a different emphasis in PBL, where positive behaviour is explicitly framed as being in service of learning, by comparison with PBIS where the emphasis rests on behaviour in its own right.

8.3 Contextualising PBL

The capacity for individual contextualisation of the PBL process is built into the original PBIS framework. This flexibility is part of its attraction at both the regional and school levels, as underscored in assertions by PBL leadership that it is a process rather than a program. Viewed from this perspective, it may appear that there is little that needs to be changed to effect cultural transfer. Since adaptability of the model is inbuilt, individualisation to suit each school is to be expected. However, such assumptions regarding PBL’s universal application risk masking crucial interactions between the PBL approach and local contexts that impact on its implementation.

It was evident through our fieldwork, for example, that the close attention to the Quality Teaching model at the two Phase 1 schools had a positive impact on the way PBL was implemented. These schools recognised and encouraged social support and student self-regulation within a quality learning environment as relevant, if not foundational, to the implementation of PBL. The principal at Phase 1.2 School had worked:

A lot with Quality Teaching and integrated curriculum. There was a change in staff culture by reframing our thinking to be more student-centred. We put a lot of emphasis on student welfare and on pedagogy. … Our management planning is focused around the school’s priorities of Quality Teaching, integrating technology and PBL.

While the learning impacts of the PBIS model are associated with teaching positive behaviours and decreasing disruptive behaviours, this is only one element of creating a positive learning environment. Sugai & Horner (2007), two of the originators of PBIS, acknowledge that addressing behaviour through PBIS is one part of an effective whole school approach; learning also needs to be effectively and directly addressed.

Throughout 2007, in parallel with implementing PBL across WSR, professional learning was conducted to re-envision the function of Learning Support Teams. Emerging from this process, there has been an emphasis at a functional level on the connection between the two priorities of learning support and PBL. In positioning WSR’s strategic principle of ‘a relentless focus on learning’, the converging of these two team-based initiatives is evidence of valuing and sustaining the priority on the relationship between behavioural and cognitive learning in the classroom. Further evidence will emerge when Phase 1 schools progress from PBL’s universal school-wide emphasis to the stage when classroom learning is addressed.

On a recent visit to the US the WSR PBL Coordinator noted there was particular interest in the ways in which student learning was being addressed in WSR schools in conjunction with PBL. She observed that this interest in approaching learning coincided with an emphasis in the US on the behavioural aspects of PBIS. This clearly suggests that
the change from PBIS to PBL has the potential to be more substantive than a mere cosmetic change of name.

Developing the learning component will become increasingly important as PBL implementation moves into the classroom. For these reasons it is important to develop a conceptual structure for the PBL model that effectively and proactively integrates Quality Teaching methods rather than expecting indirectly (as in PBIS) that improving behaviour and reducing office referrals is sufficient to increase all children’s learning.

8.3.1 Regional impacts of contextualising PBL

A feature distinctive in Australia is WSR’s commitment to, and thoroughness in, systemic region-wide implementation. Tim Lewis explained in interview that experience with the PBIS model had shown the superiority of region or district-based implementation over a model in which no provisions are made for ongoing structured support. WSR’s planned strategy of region-wide implementation distinguishes its approach within Australia.

In WSR the Regional Director recognised the critical lesson from the US on the need ‘to establish a supportive infrastructure for the Region-wide rollout’. He agreed to strategically support PBL as ‘a model for the entire Region with a target for a broad take-up by the end of 2009’. At the outset, the Regional Director instigated two positions for a regional coordinator and officer within existing resources, whose roles have been to lead and manage the momentum, consistency and sustainability of PBL in its phased introduction across the Region. This infrastructure has changed the approach to both behaviour support and learning, and stimulated the development of proactive, region-wide ways of building and supporting schools’ capacities for effective management of behaviours and learning.

The triangular PBIS model for prevention and intervention (see Figure 8.1) distinguishes percentages of students who benefit from universal intervention alone (80% according to PBIS) from those who require more targeted (15%) or intensive support (5%). This model distinguishes academic and behavioural systems across the triangle as a means of supporting student success at school. Similar to international and Australian models for school-based mental health promotion (e.g., MindMatters, Commonwealth of Australia 2000 and KidsMatter, Commonwealth of Australia 2007, see also Auseinet, 2007), this three-tiered approach indicates that a different kind of intervention is required at each of the three levels. This model has been very influential in WSR for garnering whole school support for the PBL approach. A member of the Regional Leadership Team notes that at the region level:

We’ve been having a lot of discussion [to] strengthen the three-tiered approach to academic and behavioural support.
Transfer of PBIS to the Australian context may be expected to be significantly more complex for targeted group interventions (tier 2, yellow section in Figure 8.1) and intensive individualised interventions (tier 3, red section of Figure 8.1) than it has proved so far for tier 1. While involving whole schools, tier 1 interventions are effectively managed by teaching staff. For tier 2 and tier 3 interventions specialist staff support is required. Structures differ for offering such support in Australia and the US. For example, it is common in the US for specialist support staff to be available in schools to guide behavioural interventions and for Functional Behaviour Analysis to be mandated as a treatment for children with behaviour problems. Australian approaches to school mental health issues typically follow different lines.

Accordingly, thorough consideration will need to be given to identifying the kinds of systemic support required at regional and institutional levels for schools to implement tier 2, targeted group interventions and tier 3, intensive individualised interventions. Further contextualisation and adaptation of the PBIS model are very likely to be necessary to enable effective implementation. Cultivating the interface with other compatible Australian schools initiatives will be a crucial part of effective contextualisation. For example, the Australian Primary Schools Mental Health Initiative, KidsMatter (now in pilot), has identified a range of Australian evidence-based programs and resources relevant to all three tiers in the PBIS model (Commonwealth of Australia, 2007).

### 8.3.2 School impacts of contextualising PBL

One of the reasons for the enthusiastic uptake of PBL by schools in WSR has been its capacity to build cohesion amongst teaching staff around communicating clear behavioural expectations. By insisting on the use of data-informed practices it establishes transparent decision-making, thereby also encouraging staff to observe and reflect on children’s behaviours and the contexts in which they occur. It assists with shifting staff...
perceptions towards proactive responses to children’s behaviour.

This leads to a facilitation of learning because everyone knows what’s expected. It’s about behaviour but it affects learning (Regional Leadership Team member).

Interestingly, while this emphasis on changing staff attitudes was regarded as a major strength by principals interviewed for this study, this research found no differences in teacher efficacy between PBL and control group schools. As discussed earlier, this might suggest the possibility that the influence of PBL has as yet not moved sufficiently from school-wide and non-classroom settings to classroom settings, or that teachers themselves do not see PBL as related to their instructional capacity. Since efficacy scores were fairly high for both groups it would appear that, currently at least, teachers assess their own teaching competence with a view to other dimensions of teaching rather than to practices associated with PBL. However, this may change over time, given that PBL implementation at this stage has only just begun addressing classroom level practices that would be expected to have the most direct effects on teacher efficacy.

As we have seen in chapter 7, one of the effects of school-based contextualisation of PBL is that its dual emphasis on behaviour and learning can be interpreted differentially. Whereas two of the fieldwork schools clearly showed very effective ways of using PBL to enhance their already strong orientation to the Quality Teaching framework and student-centred learning, one teacher reflected:

We’ve honed in on the Quality Teaching (QT) components though we haven’t fully aligned PBL with QT. We’re implementing them together so the way we pose and phrase questions, QT has come out.

And another teacher from the same school indicated that teachers now:

Take into consideration the style of how a child learns. In the past we would just verabised it, but now [we’re] in demonstrating it.

Another school opted to interpret the ‘positive’ in PBL in terms of much narrower teacher-directed behaviours. In comparison with the learner-centred emphasis of constructivist teaching methods, this instructional emphasis is a limitation of behaviourist models of learning. Thus it seems that school-based contextualising of the behavioural elements of PBL in relation to the Quality Teaching framework has been a major feature in the cultural transfer from PBIS to PBL, and one that seems very likely to have enhanced its benefits. Placing explicit emphasis on the integration of PBL and the Quality Teaching model, using case study schools as examples, may be a beneficial further development to enhance effective contextualisation of PBL. This has implications for developing PBL training at the regional level.

8.4 Effects of translating PBIS to PBL

School responses to PBL, and to regional support for its implementation, have been extremely positive overall. This enthusiasm is apparent despite, as its originators acknowledge, there being nothing new in its approach to student behaviour (Lewis interview 2007; Sulzer, Azaroff & Mayer, 1994). Standard advice on effective discipline practices, informed by research and practice, indicates the benefits for young people’s behaviour and social development when a small number of clearly stated positive expectations are taught and effectively reinforced (e.g., Rogers, 1995).

What is new with PBL is a process whereby whole school staff teams can come to agree
on what those expectations should be and on how to implement them positively and consistently. This capacity to produce systemic organisational change is the great strength of the PBIS model, with outcomes shown in more effective and distributed leadership, improved learning environments and supportive structures. Though it is too early for such clear outcomes to be measured for WSR implementation of PBL, indications that PBL is on track to show similar results were nonetheless evident in the high degree of satisfaction found amongst staff, students and parents and in fieldwork observations and responses.

Having achieved these benefits through PBL’s system-wide approach, it has become apparent within WSR that this model can provide a mechanism to support other initiatives including curriculum development and learning programs. As a member of the Regional Leadership Team said:

It’s [PBL] in the middle of everything, ... it’s an umbrella. It’s about what happens in a school. It’s not just behaviour, but about behaviour and learning.

It appears that the essential components of PBL can be maintained and implemented while living alongside or in conjunction with the Quality Teaching framework or as part of other student wellbeing initiatives such as Friendly Schools and Families (ECU, 2008), a bullying-reduction program, which was operating concurrently with PBL in Phase 3.1 School. In fact, when PBL is viewed as a systemic process facilitating school-wide cultural change based on evidence and evaluations it can exert an influence on the attitudes of staff, students and parents towards behaviour and learning and the relationship between them.

One of the things we’ve strengthened in our training is the whole understanding of how the leadership team operates and that it is a critical systems piece within the school. If you can get schools to see the leadership team as a systems piece, then get them to recognise the value of that team, their implementation of PBL will be more powerful.

8.4.1 Fidelity and adaptation

While recognising the value of PBL as a flexible process, the Regional Leadership Team and coaches have at the same time been committed to ensuring that their approach to implementation maintains the integrity of the model outlined in the PBIS implementation blueprint. A member of the implementation team indicated:

We’ve been very passionate about maintaining the integrity of the process itself and supporting schools to adapt PBL.

Accordingly, each stage of the PBL process has been implemented with the guidance and involvement of the US PBIS team, Tim Lewis and Lori Newcomer and University of Missouri, St Louis. This has included their evaluation of the training delivery by WSR staff. In addition, two members of the WSR PBL Regional Leadership Team have visited the US to observe schools’ and systems’ practices in supporting positive student behaviours and methods of data collection.

The WSR approach to PBL mirrors the key aspects of the PBIS blueprint document (OSEP, 2004) including expansion of the process and visibility at school and regional levels. In recognition of the fidelity with which WSR has worked to implement the PBIS model, one of the US PBIS team was reported to have described ‘Western Sydney’s implementation of PBL [as] exemplary, excellent coordination, a structured and highly
coordinated roll-out’ (Regional Leadership Team minutes). In interview, Tim Lewis acknowledged that PBL implementation in the Western Sydney Region is staying true to the PBIS blueprint.

An emphasis on process in PBL implementation suggests a seamless balance between fidelity and flexibility. This perspective emerges as a key dimension of the PBL coordinator’s enthusiasm for the initiative.

The process is the same in each school but schools can adapt it to their unique settings. I love the differences between them all – how they’ve gone about it. … We say to them, “If you get this piece right, get your leadership team understanding the processes, then whatever you create will be terrific”. … success often depends on the ability of the principal to facilitate teams - to lead, but also step back when appropriate. The telling part is when schools realise that, “Okay, if we run our committees using this PBL process we might have more of an impact”. That, to me, is when you really start to get into it.

Tim Lewis sees the PBIS model as a process or framework for changing schools’ culture of discipline. Because it is a process, not a program, he regards it as flexible and open enough to integrate with other initiatives related to mental health, character education or social and emotional learning (Tim Lewis interview, October 2007).

While this kind of integration may be the ideal, analysis of PBIS documentation reveals a degree of tension between its emphasis on fidelity of implementation and the capacity to measure the impact of other approaches. This is apparent in the use of the SET evaluation tool (Horner et al., 2004), which seeks very specific measurement of criteria relating to schools' compliance with the existing model. The process for assessing the effects on learning and school culture of other models or approaches that may be embedded with PBL is not clearly articulated. It is important not to discount these effects and to recognise associated school achievements

8.4.2 Sustainability with other initiatives

Sustainability is cited as a key motive in the development of PBIS’ systemic process. To effect sustainability of positive behaviour support PBIS emphasises a team-led, data-driven approach that provides structural support for collaborative data analysis and decision making. Clearly, PBL shares this approach to whole school change.

The WSR effort to ensure sustainability of the PBL system has responded to issues associated with staff turnover by developing and implementing a retraining strategy for the school leadership teams and coaches. Initial and ongoing twice-per-term training for the schools’ PBL coaches is also significant to the sustainability of PBL as an impetus for systemic school change.

Sustainability of regional support is an issue of concern as the PBL training currently resides with two staff, the PBL coordinator and officer. As PBL expands to a wider range of schools across the region, the training capacity should not be restricted. Strengthening the recruitment strategies for more trainers and coaches could in turn enhance the capacity of coaches. The region might consider establishing a network of PBL consultants (across all three tiers) to provide systemic assistance in the roll-out of PBL.

Effective implementation is premised on a common vision, experience and language (OSEP, 2004). This suggests the importance for WSR of continuing to develop a coherent articulation, supported by evidence, of the interaction between the methodologies adopted in PBL and effective teaching and learning practices.
The language and practices of the Quality Teaching model, in particular, were evident in the fieldwork schools and in the way that PBL dovetailed into these existing practices. Ensuring that the kinds of data collected as part of PBL primarily serves the needs and aims of schools in WSR, therefore appears important to sustaining schools’ enthusiasm and commitment over time.

Continuing to develop the interface between PBL and other Australian education initiatives, for example in anti-bullying, values education and mental health, is also likely to aid sustainability and coherence of the initiative. In addition, as indicated above, detailed consideration of how specialised support can/will be provided to resource the roll-out of tier 2, targeted-group interventions, and tier 3, intensive individualised interventions, is necessary.

As acknowledged by Tim Lewis, the systemic framework developed for PBL can/should engage with a range of initiatives for providing academic and social support to students. WSR is already exploring at a regional level and with particular schools how PBL and other initiatives can complement each other. An important direction for WSR is therefore to continue to identify which initiatives the region and its schools could connect to enable a robust outcome for PBL, but more importantly, for the success of students’ learning. As part of this process, the region is encouraged to continue in its effort to establish effective information systems that will provide, for its planning processes, data about the range of schools’ initiatives across the region. It is recognised that the School-wide Information System (SWIS) will be available in 2008 and will provide a standardised data collection system and electronic infrastructure to support schools and the Region, however the technical and training infrastructure to support the implementation of such a system must be established. To provide data for the evaluation of implementation efforts in schools, there is a need to establish a standardised data collection system that measures demographic, academic, behavioural indicators.

8.5 Summary

Though an admirable emphasis on fidelity to the PBIS model has been central in DET WSR’s implementation of PBL, it is apparent that the change of name to PBL has entailed more than merely wording. While it is clear that the PBIS systems model, underpinned by data-based decision making has had a significant impact on thinking and practices within WSR, it is also evident that the emphasis in WSR on supporting learning has influenced implementation of the PBL model. Further work to articulate and incorporate this conceptual underpinning and to consider the interface between PBL and other related school initiatives will enhance the process of contextualising the PBL initiative to meet the needs of schools in this region and support students’ positive behaviour and learning.
Chapter 9
Conclusion

9.1 PBL implementation in Western Sydney Region

It is clear from the study that the introduction of PBL has made significant positive changes to the capacity of DET schools in WSR to respond effectively to students’ behaviour. It has provided a systemic framework that has enabled schools to track their management of student behaviour and has enabled schools to develop coherent whole-school practices that enhance teaching practices and support positive behaviour. In advocating a central priority on learning outcomes DET WSR has sought to adapt the PBIS model in line with important local priorities. While further development is required to fulfill this potential, it represents a very significant and promising innovation for the Region.

9.2 Responding to the research questions

The four central questions of this investigation revolved around the processes entailed in the cultural transfer of the US PBIS model to PBL schools in the Western Sydney Region. In addressing the fidelity of implementation according to the PBIS approach data was analysed from surveys of students, staff and parents of 31 schools and research materials from the field: three schools, the Regional Leadership Team and a US PBIS consultant. Data was also analysed to determine the impact at the school level, effectiveness at the regional level and implications for the future.

The findings of this report responded to the four research questions and the phenomenon of PBL implementation, leading to the following conclusions and recommendations.

9.2.1 Summary of findings for the first research question:

*How have schools implemented PBL? Which processes have schools found effective for their different contexts?*

In addressing this first research question, the research pointed to three features of PBL implementation that are common across the fieldwork schools and three differences in the way they contextualised the process. Both common features and differences are distinctive in the implementation of PBL in the Western Sydney Region. The shared features of PBL implementation in schools were as follows:

- Schools maintained consistency in approach, especially with regard to language and this has been a key indicator of cultural change.
- Value was placed on local examples in the training; and a stable, trained, collaborative leadership team and executive were positive factors during the implementation of the process.
- Coaches and school PBL teams experienced valuable interaction and the evidence suggests that this relationship is critical to the implementation of PBL. It appears that the teacher background of the coaches is an important recruitment criterion.
Differences across schools in contextualising PBL were as follows:

- The field study schools involved students in decision making at varying degrees.
- Local considerations favoured a networking/clustering of some primary and high schools especially in respect to shared PBL expectations.
- Staff ownership of the PBL process showed variations among the field schools which can be attributed to a number of factors, one being staff turnover which in turn impacted on the momentum of implementation.

Recommendations about PBL implementation:

a) Regional and school support for a distributed and collaborative leadership model in the school change process would help to maintain the momentum and consistency of implementation. Systematically involving students in the decision-making process could be embraced by the school leadership teams as a key strategy for maximising ownership of the process.

b) The Region’s continued development of local examples in the PBL training sessions would strengthen the contextualisation of the PBL initiative into the school environment.

c) The Region should maximise the interaction of coaches and school PBL teams especially in collecting and maintaining data that provide an evidence base for monitoring behavioural changes. Formalising the implicit strength of the coaching model by acknowledging the accountability of the coaches to the PBL process and their special relationship with teaching colleagues.

d) The Regional Leadership Team should re-examine the sustainability of coach recruitment and identify alternative sources of coaches to supplement the existing volunteers.

9.2.2 Summary of findings for the second research question:

What effects are evident from students’ behaviour, motivation, self-concept, and learning?

In answering this research question, the experimental group was compared against the control group. The effects of PBL based on the present sample may be summarised as follows:

- As measured by the SET PBL schools experienced positive changes in school-wide and non-classroom behavioural management practices. This indicates a high degree of fidelity in PBL implementation.
- Teachers from PBL and non-PBL schools did not differ in their self-efficacy of engagement and classroom management. Teachers in the WSR appear to have high self-esteem and very high instructional and management efficacy.
- Student behaviours (attendance and suspension rates) did not differ between PBL and non-PBL schools. Under close examination, there is no obvious impact on student suspensions in primary schools due to PBL. In both PBL and non-PBL schools there have been increases in short and long suspension rates. However, during the period 2005-2007 long suspensions rates in the first two groups of high schools implementing PBL had decreased by 26%. In contrast, an increase in long suspensions rates of 34% had occurred in non-PBL high schools.
• Student motivation was generally more favourable for PBL schools. Noteworthy differences were found in positive orientations including Belief, Value, Planning, Management, Persistence (relatively higher for PBL schools), and in Disengagement (a negative orientation which was found to be lower for PBL schools).

• Student self-concept was generally more favourable for PBL schools. Noteworthy differences were found in two academic dimensions (School competency self-concept and mathematics self-concept) and one non-academic dimension (Parent relations self-concept).

To evaluate the usefulness of PBL, satisfaction rates were assessed. Parents showed high satisfaction rates for all three indicators (at 70% benchmark): Usefulness, Satisfaction, and Recommendation, and they were consistent across three phases of PBL implementation. However, the pattern of results for students showed otherwise. Phase 1 students showed acceptable rates for all three indicators (about 70%), but those in Phases 3 and 4 were clearly low (< 50% for all indicators). The results suggest that for students to perceive its usefulness, the implementation of PBL needs to be sustained over almost two semesters.

Recommendations:

a) Attendance and suspension records did not seem to be sensitive enough to provide a strong test of PBL effects on student behaviour within the sample of schools participating in the research. Better student behaviour measures would enable more direct and specific assessment of changes in student behaviour following PBL implementation. It is recommended that the WSR identify more sophisticated methods to monitor attendance and suspension records so that impacts of PBL can be more reliably evaluated and reported.

b) While levels of compliance with PBL implementation were high, there were only weak indications of effects on learning as demonstrated through differences in motivation and academic self-concept. As PBL implementation moves into the next phase where classroom practices are a focus, further opportunities for assessing the effects of PBL on student learning should be followed up.

c) Future research to consider the use of more contextually specific instruments to measure self-concept and self-efficacy in relation to PBL implementation over time.

9.2.3 Summary of findings for the third research question:

How does the implementation of PBL impact on the attitudes of school staff, students, and parents to learning and behaviour?

PBL was shown to:

• Impact on attitudes of school staff through its advocacy of positive and preventative approaches to behavioural management within in a systemic school-wide approach;
• Influence student attitudes in relation to expectations taught;
• Gain acceptance of parents when effectively communicated, although some of the core principles of PBL may not have been fully understood.
There was, however, variability in interpreting the notion of ‘positive’ behaviour. This may limit the effectiveness of PBL for supporting students’ broader learning.

In summary, PBL altered teachers’ perceptions of behaviour and influenced practices of behaviour management in schools. It was argued that, at this stage in PBL’s implementation, its focus on learning how to behave may limit its effects on promoting other forms of learning.

Consequently, it is recommended that the Region and its schools:

a) Include specific strategies to promote classroom learning such as those associated with the Quality Teaching framework in future PBL implementation.

b) Promote deeper engagement with the theoretical assumptions and research that inform the notion of ‘positive’ behaviour, its cultivation and its relationship to learning through ongoing PBL professional learning.

Overall, PBL has impacted positively on attitudes of the school community towards behaviour and learning. As with any new initiative, resulting changes will interact with existing contexts to produce a diverse range of behaviour and learning outcomes. Monitoring of these outcomes and the processes that produce them should continue so that successive whole school and individual teacher professional learning can be tailored to promote a deeper and more meaningful attitudinal understanding and implementation of the PBL principles.

9.2.4 Summary of findings for the fourth research question:

What changes are made to the PBIS model at a school and regional level as part of implementing PBL? For what reasons and to what effect?

Evidence supports WSR’s fidelity to the PBIS model in the implementation of PBL and that the change of name to PBL has emphasised the influence of learning in this process. In considering the adaptation of PBIS for implementation in WSR as PBL it was evident that:

- WSR has been strongly committed to and demonstrably successful in maintaining the integrity of the PBIS model while adapting its terminology for the local environment.
- Renaming the initiative as PBL has assisted uptake in WSR by enabling schools to contextualise its goals as relevant to WSR priorities on learning and to state and national emphases on Quality Teaching.
- The systemic approach introduced by PBL has been instrumental in stimulating the region to redesign its approach to behaviour and learning support. This has entailed conceptual development of the PBL model to strengthen its learning emphasis.

Recommendations for the Regional Leadership Team:

a) Further conceptual development, drawing on current research and theory on teaching and learning, is required to support effective local contextualisation of learning support. This development could be supported by drawing on the expertise of UWS academics.

b) The incorporation of evidence-based approaches to learning based on broader models than that currently underpinning PBIS would enhance this dimension. The range of evidence-based programs developed in Australia should be investigated and considered.
c) Development and sustainability of the PBL initiative, particularly at tiers 2 and 3, could be enhanced by investigating potential synergies with related state and national initiatives. The Region should explore ways to support schools as they work with these initiatives. This is a particularly important strategy to ensure contextual relevance in terms of content, delivery and resourcing of the specialised interventions required at these levels of intervention for behaviour support, for learning and for children’s wellbeing.

9.3 The way forward
The present preliminary findings suggest that the PBL model is helping to bring about a more systemic, proactive approach to behaviour management across a number of schools in the WSR. However, further research is required to tease out the differential effects of the range of variables that may have contributed to these findings. To this end it will be helpful to modify the research design to include, for the quantitative component, better student behaviour outcome measures and longitudinal analysis of multiple sources of data from experimental and control groups. A larger study with increased sample sizes of both schools and students will enhance the power and accuracy of these statistical analyses.

In addition, extending the fieldwork component of the research to conduct in-depth evaluation of PBL implementation at further schools will be important for clarifying the school-based elements of implementation that support PBL effectiveness. This will be especially valuable for refining the integration of learning into the PBL model and enhancing the local model accordingly.

Funding will be sought from nationally competitive sources such as the Australian Research Council Industry Linkage projects scheme to support a continuing, large-scale investigation of how the model of positive behaviour interventions and supports is being adapted for use in the Western Sydney Region and to make comparisons with its implementation in other Australian settings. As local adaptation of the PBL proceeds it is important to support its development with a comprehensive research framework. The next stage of the research would extend from these preliminary findings to further develop and test such a framework.
References


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Appendices

Appendix 3.1

Focus group and interview questions for the Regional Leadership Team
What behaviour supports existed in the region prior to PBL?
What expectations influenced selection of PBL model for WSR region?
How do leadership team members understand their role?
What changes do you see have been made/need to be made to facilitate transfer of PBL from US to WSR?
To what extent have expectations re PBL been met to date?
Have there been any unexpected effects?
How has PBL been modified to suit local conditions?
What have been the challenges associated with implementation at a regional level?

Appendix 3.2

Interview questions for the Regional Coaches for the field schools
What attracts you to the role of PBL coach?
How do coaches perceive their role in PBL schools and how easy or difficult has it been to effect?
What are some of the success stories?
What makes for effective PBL implementation in schools?
What do coaches contribute to effective implementation?
What challenges have coaches encountered in their role in PBL schools? (e.g. single or multiple schools)
How have coaches influenced the translation of PBL in WSR and in the specific schools they have coached?

Appendix 3.3

Focus group and interview questions for the field schools

Focus group and interview questions for the Principal
What are the behaviours that the school is currently explicitly teaching?
How did the school arrive at this and the other set of behaviours being targeted?
What is the school trying to achieve with the implementation of PBL?

Focus group questions for the PBL School Leadership Team
Why did you choose to participate in PBL?
How has your school gone about implementing PBL?
How has PBL been contextualised to suit your school’s needs?
Who is important to involve in PBL implementation?
What do you think has been most helpful in engaging the whole school community?
What changes have you noticed with teachers, with students, with families? (e.g. systemic, behavioural, attitudinal)
Focus group and interview questions for the teaching and administration Staff
What changes have you noticed in your school’s approach to student discipline and welfare?
What impacts has PBL had so far on learning and teaching?
What has happened at your school to get people interested in PBL?
How well has PBL engaged different cultural groups at your school?
How have parents responded to the PBL initiative at your school?
How easy has it been to implement PBL?
What have been the challenges associated with implementing PBL?
What kinds of regional-level support have been available to you? What has been most effective as support?
What has surprised you?
Based on your experience so far what advice would you give a school thinking of starting PBL?

Focus group questions for the School Students
Establish students’ context in their school.
Establish school’s PBL core expectations.
What does your school expect from you in terms of PBL?
What does this mean for you in the playground; classroom; corridor; at the canteen?
Do you think PBL has made a difference at your school?
What have you noticed that shows the differences?
What’s good about having PBL in your school?
Have there been any problems or difficulties (associated with implementing PBL)?
Have you had any role in putting PBL into place over the past year?
What has surprised you since your school started PBL? (Years 5, 7, 9, 11)
How have teachers helped students understand what behaviours they expect (since starting PBL)?
Has this made it easier/better? How?
Do you think that students’ behaviour at school has changed since your school started PBL?
Has teachers’ behaviour changed?
Has PBL changed your feelings about school in any way? (for high school students)
Do you feel happier/better about school since PBL started? (for primary students).
Has PBL made it any easier to get on with your schoolwork? Has it made you more interested in your schoolwork?
What things have you achieved in PBL?
How has your behaviour changed in the past 6 months/year?
How has other’s behaviour changed in the past 6 months/year?
Has it made a difference to your learning in the classroom?

Focus group questions for the School Parents
How has the school communicated with parents about PBL?
How effective do you think this has been?
What do you understand are the main aims of PBL at your school?
What is the role of parents in planning for PBL?
What is the role of parents in supporting PBL implementation?
Do you think PBL has made a difference to children’s behaviour at your school?
Has it made any difference to behaviour at home as well?
What do you see as the main benefits of PBL?
What, if any, concerns do you have about PBL at your school?
Appendix 3.4

Research timeline

The following timeline tracks the progress of the research partnership between November 2006 and March 2008. The Table demonstrates key stages of the research collaboration but is not able to capture its dynamic nature as actually experienced between the DET WSR and UWS partners.

<table>
<thead>
<tr>
<th>Month</th>
<th>Research activity</th>
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<tbody>
<tr>
<td>November 06 –</td>
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| February 07    | • Complete ethics process with UWS HERC  
• Establish monthly meeting schedule for partners’ project management meetings  
• Prepare surveys  
• Select schools for participating in research  
• Gather information on how schools have involved parents so as to develop parent survey questionnaire |
| February 07 –  |
| March          | • Complete SERAP process with DET  
• UWS researcher attends regional PBL team meetings |
| May 07         | • Receive feedback on DET SERAP process  
• UWS researcher attends regional PBL team meetings |
| May 07 – August 07 | • Prepare and print surveys  
• Permission from participating schools: principals, teachers and parents  
• Collect data from 10 schools in phases 1, 3, 4, & control group (survey 1 year group across each stage eg. 3, 5, 7, 9, 11)  
• Make contact with case study schools & negotiate fieldwork timetables – two Phase 1 schools and one Phase 3 school  
• Regional Leadership Team focus group and individual interviews. |
| September 07   | • Field visits to 3 schools including coaches  
• Clean quantitative data  
• Preliminary quantitative analyses  
• Continue Regional Leadership Team individual interviews.  
• UWS researcher attends regional PBL team meetings |
| October 07 –  |
| January 08     | • Continuing field visits to 3 schools including coaches  
• Preliminary report to WSR PBL team: fieldwork and survey analysis  
• Collate and analyse all data  
• Draft report |
| February 08    | • Draft report |
| March 08       | • Present draft report to WSR & UWS partners for comment  
• Revise and submit final report |
| April 08       | • Presentation of report |