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An examination of the implementation of class-wide positive behaviour support in a Chinese primary school

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**UNIVERSITY OF
WOLLONGONG**



Faculty of Social Sciences

**An Examination of the Implementation of Class-Wide Positive
Behaviour Support in a Chinese Primary School**

Han Jiang

**This thesis is presented as part of the requirement for the
Award of the Degree
Doctor of Philosophy
University of Wollongong**

March 2015

ABSTRACT

Classroom misbehaviour has been a major concern for effective learning and teaching in primary schools in Mainland China. Although Chinese society endorses academic achievement, Chinese teachers often feel more responsible for academic teaching than behavioural management; without an efficacious classroom management, effectiveness of classroom teaching may be affected. It is argued that traditional classroom management overlooks environmental deficit, and attempts to extinguish problem behaviour and deal with individual students. Thus, the great difficulty of Chinese teachers has been in the practice of school-based interventions that not only minimise problem behaviour but also facilitates students' all-round development.

This study aimed to investigate the outcomes of implementation of class-wide positive behaviour support (CWPBS) in a Chinese primary school. CWPBS is a variant model of school-wide positive behaviour support (SWPBS). The three-tiered preventative model of SWPBS has been regarded the most effective school-based intervention and has been widely used in western societies over the past two decades. Implementation of SWPBS in Chinese primary schools is scarce, and thus, this study is preliminary and informative. Its research interest was exploring the outcomes of students and teachers, which are the most important stakeholders who are interactive in the context of classroom teaching and learning, in association with the implementation of CWPBS.

Specifically, this study was guided by seven key questions: (1) What are the behavioural outcomes associated with the implementation of CWPBS? (2) What are the academic outcomes associated with the implementation of CWPBS? (3) How have students' perceptions of quality of school life changed in association with the implementation of CWPBS? (4) What is the fidelity of implementation? (5) How have teachers' coping strategies changed in association with the implementation of CWPBS? (6) How have teachers' teaching efficacy changed in association with the implementation of CWPBS? (7) What is teachers' acceptance of CWPBS?

Methodologically, this study adopted embedded single case study design to gain an in-depth understanding of students' and teachers' outcomes during and after the implementation of CWPBS. A primary school class that consisted of 48 students and three teachers participated in the study. The teachers implemented the

interventions with consultation of the researcher. The students of the class that received the entire practice formed the holistic case, whereas the individual students that received the secondary or tertiary supports formed two embedded units of analysis. Multiple sources of data were collected, including direct observation, participant observation, semi-structured interview, questionnaire, and document review. These sources consisted of qualitative and quantitative data. Multiple analysis methods were applied to analysing quantitative data and interpret narrations in comparative or chronologic means.

The results of this study showed that both students with normal behaviour and problem behaviour made improvement in behavioural performance, academic achievement, and satisfaction of school life throughout the implementation. The teachers had a high percentage occurrence of the strategies as planned, though they displayed relatively a low percentage compliance of the procedures of these strategies and differentiated usages of the strategies. After the implementation, these teachers' repertoire of coping strategies and teaching efficacy enhanced. Overall, they expressed a high acceptance of implementation of CWPBS, in particular, providing pro-active and positive interventions to the class. However, they had relatively a low acceptance of the tertiary support due to their educational beliefs and its time-consuming nature.

The findings of this study implied that CWPBS benefited Chinese primary school students and teachers. Thus, it is worthwhile for applying the approach in the schools. Finally, this study suggested implications and recommendations for future research and practice of CWPBS or SWPBS in Chinese schools.

CERTIFICATION

I, Han Jiang, declare that this thesis, submitted in partial fulfillment the requirements for the award of Doctor of Philosophy, in the School of Education, Faculty of Social Sciences, University of Wollongong, is wholly my own work unless otherwise references or acknowledged. The document has not been submitted for qualifications at any other academic institution.

Han Jiang

30th March 2015

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CHAPTER ONE INTRODUCTION

1.1 Background to the study

In ancient times those who wanted to learn would seek out a teacher, one who could propagate the doctrine, impart professional knowledge, and resolve doubts. Since no one is born omniscient, who can claim to have no doubts? If one has doubts and is not willing to learn from a teacher, his doubts will never be resolved. (Han Yu, 802/2005, p. 62)

Chinese students are often considered disciplined and hardworking in class. Respecting teachers and their teaching has been regarded as a basic moral criterion of student behaviour at school throughout Chinese history. However, over the past two decades, Chinese students' problem behaviour has increasingly become a big challenge to classroom teaching (Zhang, 2007). The comparative follow-up study (Lin & Wang, 2007) indicated that the overall prevalence rate of primary school students' problem behaviour increased continuously and was more than doubled over two decades. In particular, internalising behaviour (e.g., worry, being afraid of new things) increased dramatically from 0.6% in 1985 to 1.9% in 1993, and to 8.2% in 2003. The trajectory has been demonstrated in recent studies (Hesketh et al., 2011; Tan, Zhao, & Tan, 2011). It is argued that such an increase is caused by China's modernization and economic growth (Liu, Leung, Sun, Li, & Liu, 2012; Savina, Coulacoglou, Sanyal, & Zhang, 2012). Factors such as the pressure of rearing the perfect "single child" and socio-economic inequalities may negatively affect Chinese children's development over time.

The issue is more severe among students from migrant families in China (Zhang & Gu, 2013; Zheng, 2014). In order to satisfy the increasing needs of urbanisation and modernisation, a huge amount of migrant workers leave villages for cities for work. In some more developing cities such as Guangzhou and Suzhou, these people make up a large proportion of the low socioeconomic population. They have poor quality of housing, education, and medical care. Research has found that the prevalence rate of

migrant children who have displayed at least one major school-related problem behaviour, including learning attitudes and difficulties (prevalence rate = 84.2%), anti-social and risk behaviour (prevalence rate = 48%), and social maladaptation and role dysfunction (prevalence rate = 98%), is higher than those who are permanent urban citizens (Zhang, Li, & Liu, 2010).

Compared with students in other cultures, Chinese students are more likely to exhibit internalising problems (Deng, Liu, & Roosa, 2004; Savina, et al., 2012). Internalising behaviours (e.g., anxiety, depression, and somatic complaints) are directed by a child's psychological status and generate negative emotions in that child, whereas externalising behaviours (e.g., aggression and delinquency) are directed by external factors and generate conflict in the environment (Achenbach, 1966). In particular, inattention and daydreaming have been reported as the most frequent and troublesome classroom misbehaviours (Ding, Li, Li, & Kulm, 2008; Shen et al., 2009). This explains why some Chinese students look obedient in class but have repeated academic failures (Zhang, Zhu, Shen, & Jiang, 2000).

Although internalising problems are less disruptive to classroom instruction than externalising problems, they are more likely to develop to intensive emotional problems such as anxiety and depression, and eventually destroy students' social well-being (Raymond, 2004). This is particularly true for Chinese students, given that academic pursuit is the most important task for schooling. The students who are misbehaving and have academic failures are likely to be blamed by teachers and parents, and also have poor peer relationships (Chen, Huang, Wang, & Chang, 2012). According to an investigation of 2,203 primary school students identified as having problem behaviours, 78% were seriously worried about exams and 80% felt pressure to attend school all the time (Hesketh, et al., 2011). Moreover, these students are routinely underserved, and continue experiencing academic failure and social biases.

Chinese teachers' understanding and management of classroom problem behaviour is profoundly influenced by the Confucian philosophy. Confucius, who was

born 551 years before the Common Era, was an educator, politician, and philosopher of ancient China. One of his main innovations, “providing education for people from all classes (有教无类)”, lay the foundation for Chinese compulsory education. The tenet of Confucian ethics is *rén* (仁) or “perfect virtue”. *rén* can be understood as “a positive orientation towards others and towards otherness characterised by a sense of unity (love) and constructive participation (reciprocity)” (Li & Wegerif, 2014, p. 26).

The person who possesses *rén* is *jūn zǐ* (君子) or “gentleman”. *jūn zǐ* is characterised as either possessing or aspiring to at least four traits of *rén*: (a) admires the law of nature, (b) regards social and human affairs as his own responsibility, (c) never forces others to do what himself does not desire, and (d) constantly cultivates himself for self-strengthens (Sun, 2008). To practice *rén*, *jūn zǐ* is also a master of knowledge, courage, and skills.

By contrast, the person who does not respect virtues is *xiǎo rén* (小人) or “petty man”. In Confucian philosophy, *xiǎo rén* is egotistic, and seeks immediate gains and does not consider the consequences of his or her action in a way that benefits sustainability and others. Confucius posits, “Of all people, women and servants are the most difficult to act to. If you are close with them, they lose their modesty. If you maintain a reserve to them, they will grumble” (唯女子与小人难养也，近之则不逊，远之则怨; Confucius, trans. 1971, p. 330). Confucius expressed dislike of people who behave discourteously and disobediently. When his students asked about gentlemen’s hatreds, Confucius answered,

He (*jūn zǐ*) has his hatreds. He hates those who proclaim the evil of others. He hates the man who, being in a low station, slanders his superiors. He hates those who have valor merely, and are unobservant of propriety. He hates those who are forward and determined, and, at the same time, of contracted understanding. (子曰：有恶。恶称人之恶者，恶居下流而讪上者，恶勇而无礼者，恶果敢而窒者; Confucius, trans. 1971, pp. 329-330)

The influence of education for perfect virtues and the dichotomy between

gentlemen and petty men as criteria for ethics and morality, has meant that Chinese students are expected to be self-disciplining and self-reflecting in class. Students who are not eager to acquire knowledge nor anxious to explain themselves need not be helped (不愤不启，不悱不发; Confucius, trans. 1971, p. 197). Although such an advocacy of teacher-as-facilitator is likely to benefit students who are motivated to learn, it is insufficient to satisfy the students who show poor adaptation to the learning environment or class system. Rather, the latter students need teachers' pre-adjustment of the physical environment and pre-direction of proper behaviour and learning strategies in order to improve their learning and social readiness. Unfortunately, such an arrangement is less likely to occur when misbehaviour is aligned with unseemliness or immorality. In this sense, the occurrence of misbehaviour is due to students' volitional control.

Chinese teachers do not see themselves as responsible for students' misbehaviour (Ho, 2004). With the value of self-discipline rooted in traditional education, teachers should be dedicated to knowledge delivery and inquiry, whereas students need to behave. Thus, given a school failure, Chinese teachers are most likely to ascribe causes such as students' low effort and poor habits, both of which are under the control of the students (Ding, Li, Li, & Kulm, 2010; Zhou, 2006). In comparison with western teachers, Chinese teachers have a stronger orientation towards the view that "students are responsible for the failure" (Ho, 2004). Furthermore, they have lower tolerance and lower sense of responsibility to a student with problem behaviour than to a student with academic failure. These reveal the influence of the Confucian philosophy on Chinese teachers' perceptions of problem behaviour. Problem behaviour mostly links with self-control and morality, rather than with ability or environmental factors.

Teachers' perceptions of problem behaviour serve as an important antecedent cue for their actions (Weiner, 1986). Given that classroom misbehaviour is most likely to be ascribed to internal and controllable causes in students (Ho, 2004), Chinese teachers often respond to the issue with poor action plans and unsustainable

implementation. When non-disruptive behaviour (e.g., inattention) occurs, the teachers tend to ignore the problem and continue with their instruction (Zhang & Shen, 2007). Alternatively, they prefer reminding strategies, including walking to the student, increasing voice volume, praising another student who sits nearby, and asking the student a question, to interfere with the problem behaviour (Zhang, 2008). When disruptive behaviour occurs, the teachers feel angry and tend to use suppressive strategies such as reprimanding and punishing (Meng & Liu, 2010). Another common strategy is involving other students in criticism of the problem behaviour. Consequently, the student with disruptive behaviour stops the disturbance because he or she feels pressure from classmates (Tian, 2013). In general, Chinese teachers perceive academic teaching as their key responsibility. They intervene with students when they sense the problem behaviour is affecting the teaching. However, they do not manage students' behaviour in a systematic way.

Such an educational orientation is not without contradictions in the contemporary compulsory education in China. First, contemporary school education is no longer a privilege of the ancient society whereby only people of high social status or who were gifted had the opportunity to receive it. It is now public welfare for children from all backgrounds to have the right and obligation of education. "Concerning and caring for all students" and "Promoting the all-round development of students¹" are regulated as two of teachers' obligations across all the laws that are associated with basic education (see Education Law, Compulsory Education Law, and Teachers Law of the People's Republic of China; Ministry of Education of People's Republic of China, 1995, 2006, 2009). Under this legal safeguard, teachers have to face a diverse group of students, including those without readiness for schooling. It is unavoidable for teachers to encounter students with problem behaviour in accordance with national curriculum and assessments, regardless of their reluctance to do so.

Secondly, the use of corporal punishment and insulation in classroom

¹ The notion "all-round development" refers to children's development of morality, intelligence and physique.

management has been criticised in Chinese society. Students are under legal safeguard from being punished. Teachers are not allowed to “impos[e] corporal punishments on students” (Ministry of Education of People’s Republic of China, 2009, Article 37). However, these forms of punishment are not uncommon in class (Romi, Lewis, & Roache, 2013). In particular, Chinese teachers tend to use disguised corporal punishment (e.g., standing, detention after school hours) and psychological punishments (e.g., mock, insult, ignore) to cause students’ emotional discomfort or distress. Although the students are aware of the reasons for the punishments, research has shown that many have experienced harm in self-esteem, and only 37% improved their behaviour afterwards (Meng & Liu, 2010; Yao, Wang, & Wen, 2008).

The dilemmas between “teaching all children for their all-round development” and “children are responsible for their failure”, and “no punishment” and “punishing disruptive behaviour to maintain class order” place primary school teachers in a difficult position. Research has shown that they experience high working pressure and turnover intention. Tang, Zhang, and Zhu (2009), for example, found that 90.1% of the teachers felt it was difficult to educate all children to their potential due to individual differences, and 90.3% felt overwhelming pressure in dealing with non-academic issues with students. Liu and Onwuegbuzie (2012) reported that 40.4% of teachers had an intention to resign. The frustration of students’ behaviour management is a major cause of Chinese teachers’ anxiety and pressure (Jiang, Liao, Zhou, Fang, & Shen, 2012). In spite of a considerable amount of time being devoted to behavioural management, the teachers have low sense of accomplishment in dealing with the issue (Shen, et al., 2009).

1.2 Introduction of the study

The most important problem of moral education in the school concerns the relationship of knowledge and conduct. For unless the learning which accrues in the regular course of study affects character, it is futile to conceive the moral end as the unifying and culminating end of education. When there is not intimate

organic connection between the methods and materials of knowledge and moral growth, particular lessons and modes of discipline have to be resorted to: knowledge is not integrated into the usual springs of action and the outlook on life, while morals become moralistic- a scheme of separate virtues. (Dewey, 1966, p. 360)

1.2.1 Research rationale

Over the past two decades, “positive behaviour support” (PBS) has been advocated to help children with problem behaviour in western societies (Burgi, Koegel, & Dunlap, 1999; Lewis, Jones, Horner, & Sugai, 2010). PBS is “an applied science that uses educational and systems change methods (environmental redesign) to enhance quality of life and minimize problem behavior” (Carr et al., 2002, p. 4). One of the milestones it achieved is its introduction by the Individuals with Disabilities Education Act (IDEA) in the United States as one of the strategies that must be considered for “a child whose behavior impedes his or her learning or that of others (Section 614 /d/3/B/i, P.L. 105-17)” (Sugai et al., 2000).

The “school-wide positive behaviour support” (SWPBS) is the most successful application of PBS to improve students’ behaviour and teachers’ wellbeing in school contexts. In the United States, all the states (including DC) have implemented the approach. More than 18,000 schools are under the supporting scheme of the Office of Special Education Program’s National Technical Assistance Center on Positive Behavior Interventions and Supports (PBIS Center; www.pbis.org). Evaluative research shows that the approach reduces discipline referrals by 40-60% (Lewis, 2012) and improves behaviour, classroom climate and academic performance by 90%, 80% and 73% respectively (Walker & Clancy, 2011).

In Australia, SWPBS was initially introduced to Queensland in 2005. To date, all the states and territories have promoted its application in public schools. Queensland has more than 400 schools that have successfully implemented the approach (Department of Education, 2014). In New South Wales, more than 50% of public

schools have now implemented the first tier of the approach (O'Neill & Stephenson, 2010). The Northern Territory has included the approach under the Safe School NT scheme (The Northern Territory Department of Education, 2013). Evaluative research shows that the approach reduced school disciplinary absences from 14.76% in 2006 to 5.57% in 2007 and problem behaviours by 57-62% (Dawson, 2008). The comparative study indicated that the schools with SWPBS were functioning significantly more positively than those without SWPBS (Mooney et al., 2008).

The application of SWPBS in western countries has influenced Asia. For instance, scholars in Taiwan introduced the concept in 2007 (Chen & Cai, 2008). Currently, a number of schools in Taipei and Xinbei regions have implemented the approach with the support of universities (Hong, 2012). In Mainland China, research on the approach is at the initial stage. Despite a number of articles introducing the framework and underpinning theories (e.g., Zhou, 2013), little empirical study has been published. Currently, a number of schools are in the process of implementation with the support of top-ranked normal universities (e.g., Beijing Normal University; Liu, Wei, & Liang, 2012).

The motivation for designing the present study derived from the need to determine the effect of implementation of class-wide positive behaviour support (hereinafter referred to as CWPBS) in a primary school in Mainland China. The research interest was to find out how students and teachers would benefit from what has been regarded as the best school-based practice in western society. In addition, it explored teachers' acceptance of the practice. Social validity is a critical variable for determining the effectiveness of interventions (Gresham & Lopez, 1996; Wolf, 1978). Without the minimal acceptance of teachers, it is insufficient to argue that SWPBS or CWPBS is a sound approach for Chinese schools.

There were two reasons for selecting the classroom approach instead of the whole school system described in SWPBS literature (e.g., Sugai & Horner, 2002). First, the classroom is the most important context for both teachers and students in China.

Given that Chinese society imposes a strong value on academic achievement (Stevenson & Lee, 1996), most of school time is spent in the class system. Secondly, a class that consists of a homeroom teacher and students forms the basic unit of Chinese schooling. A class is also a social environment. The homeroom teacher and students have developed a strong emotional bond by sharing their expectations, following routines, and addressing problems of academic learning, behavioural performance, and well-being (Shi & Leuwerke, 2010). Therefore, it is reasonable and practical to start with research on the basis of the classroom system.

1.2.2 Research design and context

This study sought to fill in the gap by investigating students' and teachers' outcomes that are associated with implementation of CWPBS. It utilised a naturalistic approach and an in-depth investigation of the implementation from multiple perspectives by analysing a single case with two embedded units of analysis.

The scarcity of empirical research on SWPBS in China warrants an evaluative case study undertaken in a real life setting. Case study approach has a distinctive place in program evaluation. It can be carried out with diverse designs and allows for understanding a program and its multiple facets in the real life context (Stake, 1995). The participating school was selected purposely for the research interest. It was recommended by the local educational department based on its record of student discipline and academic achievements. At the same time, the school principal expressed an interest in improving school management and student achievements. The participating teachers also expressed an interest in undertaking CWPBS in the class.

The class was in Grade Five and consisted of 48 students. It was purposefully selected due to its poor behavioural and academic performances in the school. The school principal and the teachers expressed an intention to improve the class by adopting the CWPBS approach. The practice was developed and implemented by the teachers in consultation with the researcher and lasted for an entire semester. The researcher trained the teachers on how to design the intervention plan. Regular meetings

were held to discuss the progress, solve problems, and make decisions.

In this study, three teachers implemented a three-tiered behavioural support under the framework of SWPBS for the class, which made up the holistic case. A focus of the holistic case was to investigate change in the students' behavioural, academic, and affective outcomes associated with the implementation. Another focus was to understand change in teachers' management strategies and sense of teaching efficacy associated with the implementation, and their treatment integrity and acceptance of the procedures.

Several students who were not responsive to the primary support received more intense interventions, which made up the embedded units of analysis. The design allows for in-depth investigation of diverse student groups. Each unit of analysis had specific research questions that were variants of the research design of the holistic case (Yin, 2009). In the study, the first unit of analysis consisted of three students who received the secondary preventative support. The second unit of analysis consisted of one student who received the tertiary preventative support. The participating student in the second unit of analysis was different from the students in the first unit of analysis due to his severity of problem behaviour and unresponsiveness to the secondary preventative support. In each unit of analysis, the research interests were behavioural and academic performances of the particular student(s), and teachers' acceptance of the particular intervention. The research outcomes from each unit were added into the global research outcomes.

The in-depth investigation was also realised by collecting multiple sources of evidence, including direct observation, participant observation, questionnaire, interview, and document. The data consisted of qualitative data (e.g., teacher interview) and quantitative data (e.g., behavioural rating scale). Perspectives were sought from diverse stakeholders, including the homeroom teacher, academic teachers, students, and parents. The processes of triangulation, including the measures and methods, provided accurate evidence about the case (Turner, 1998). Analysing these data by following a convergent

logic provided corroborating justification for the research questions.

Multiple analysis methods were used during and after the data collection was completed. Quantitative data analysis contained descriptive and inferential statistics, and time-series analysis. The general procedure consisted of preparing data, data analysis, presenting the results, and interpreting the results. Descriptive analysis informed general tendencies (e.g., mean) and spread of scores (e.g., standard deviation, range), and compared a single score with all other scores (e.g., Z score, percentile rank). Inferential statistics indicated whether or not a variable measured during or after the implementation was significantly different from that of the baseline. In order to determine the meaningfulness of difference in a practical sense, effect size coefficient (Cohen's *d*) was calculated (Creswell, 2012). Time-series analysis demonstrated the change and trend of defined behaviour over time in a chronological order. The results were used to predict the pattern of the behaviour in association with the implementation (Swanborn, 2010).

Qualitative data analysis was used for the data collected from interviews (excluding the data from the TES-CV) and records from participant observation. Creswell's spiral process (1998; 2007), consisting of data managing, reading and memoing, describing, classifying and interpreting, and representing and visualising, was adopted as the principle procedure. The analysis was undertaken progressively, starting from once the raw data had been collected. The process is congruent with the logic of evaluative case study in that inquiry is "progressively focused" (Stake, 1995, p. 133).

1.2.3 Research questions

The study was guided by two core research questions: What are students' outcomes in association with the implementation of CWPBS? What are teachers' outcomes in association with the implementation of CWPBS? These questions fill the gap of the scarcity of evidence-based research of SWPBS in Mainland China. Investigation of the particular case with two embedded units of analysis would provide useful data and implications for the feasibility and social validity of practicing SWPBS

in schools in Mainland China.

Three sub-questions were developed to guide the investigation of students' outcomes. These questions (listed below) examine different facets of students' outcomes that are at the centre of school education in China. Thus, the findings provide implications on one of the internal validity of PBS, that is, solving real problems in real-life contexts.

Question 1: What are the behavioural outcomes associated with the implementation of CWPBS?

Question 2: What are the academic outcomes associated with the implementation of CWPBS?

Question 3: How have students' perceptions of quality of school life changed in association with the implementation of CWPBS?

The first question was aligned with the secondary but immediate goal of PBS. Given its root in behavioural science, PBS changes behaviours by adjusting the environment and/or teaching appropriate behaviour (Carr et al., 1999a). The second question was concerned with one of the main purposes of SWPBS. Academic achievement of all students is an important goal of school education. In particular, striving for academic achievement takes a dominant position in Chinese schools. SWPBS practitioners and researchers regard academic improvement as a main objective of the practice as well. In this study, poor behavioural performance and low academic achievement were the major issues in the class. The status of the class, as well as the need for better classroom management from the principal and teachers, warrants the application of CWPBS.

These questions encompassed outcomes of the entire class (the holistic case), a group of students with problem behaviour (the first unit of analysis), and the individual student who displayed more severe problem behaviour (the second unit of analysis). In specific to behavioural outcomes, the change was determined by reduction of problem behaviour (e.g., off-task) and increase of expected behaviour (e.g., on-task) from

reflections of teachers and parents, and records of direct observation by the researcher and inter-observer. As for academic outcomes, the improvement was assessed by comparing results of school achievement tests during and after the implementation with those of baseline. In addition, teachers' reflections of student performance throughout the implementation were a part of the investigation.

The third question was associated with the primary goal of PBS, that is, enhancement of an individual's quality of life. Given a school-based research, it would be meaningful to examine the effectiveness of the implementation on changing the students' quality of school life (QSL). The investigation was undertaken by comparing students' ratings of the QSL questionnaire before and after the implementation.

Four sub-questions were developed to guide the investigation on teachers' outcomes. A sound approach is not only helpful to students, but also benefits teachers. The research and practice of PBS in western countries had paid increasing attention to teachers' behaviour and well-being. Social validity is, therefore, another core element of the internal validity of PBS. The investigations on the sub-questions (listed below) were expected to provide evidence to inform the quality in a school context in China.

Question 4: What is the fidelity of implementation?

Question 5: How have teachers' management strategies changed in association with the implementation of CWPBS?

Question 6: How have teachers' teaching efficacy changed in association with the implementation of CWPBS?

Question 7: What is teachers' acceptance of CWPBS?

The fourth question was for exploring teachers' actual intervention in relation to the plan. Treatment integrity is a direct indicator of social validity (Gresham & Lopez, 1996). A carefully designed behavioural plan cannot be considered acceptable if it is implemented with low integrity. In the study, each teacher's actual use of the strategies decided by the PBS team in advance was observed throughout the implementation.

The fifth question was designed to examine the change of repertoire of

management strategies associated with the implementation. Teachers construct their own management strategies for classroom management. Teachers can be more positive to students once their repertoires contain more positive strategies. Thus, it is important to find out whether the teachers tend to adopt more positive strategies after the implementation. The inquiry was conducted by comparing their reports of behavioural management strategies before and after the implementation.

The sixth question studied the change of teaching efficacy associated with the implementation. Teachers' sense of teaching efficacy plays a critical role in the classroom teaching and student outcomes. Research in western countries suggests that implementation of SWPBS facilitates teachers' teaching belief and confidence. In this study, the augment was examined by comparing teachers' teaching efficacy before and after the implementation.

The seventh question aimed to explore the teachers' satisfaction with the goals, procedure, and outcomes of the implementation. Unlike the fourth question that was concerned with teachers' behaviour, this inquiry tried to explain the social validity from the angle of teachers' subjective judgment. However, the investigation on the questions (the fourth and seventh) together would allow a pattern match for a more accurate understanding about the social validity of CWPBS in China.

1.3 Significance of the study

This study contributes to the research body of SWPBS in a number of ways. First, it is a preliminary evaluation of CWPBS practice implemented in the social context of Mainland China. Edward G. Carr and Robert H. Horner, who are two principal founders of PBS, emphasise salience of culture validation in the development of PBS. They argue

... to ensure success, PBS concepts and strategies need to be modified so that they reflect sensitivity to three major sets of issues: cultural relativism (conceptualizing problem behavior), cultural values (setting goals), and cross-cultural competence (designing interventions in a way that is acceptable to

others. (Carr & Horner, 2007, p. 10)

Practicality of SWPBS in Chinese culture should be examined in a way that practices and empirical studies are conducted in this culture. Further, assessment of the outcomes should reflect the expectations and needs of key stakeholders, or the broad society context. This study was developed to serve this purpose.

Secondly, the case study method allows for an insightful evaluation of the implementation. Traditional approaches such as experiments, tests and surveys have shortcomings in providing insights into the social interactions, and thus do not reflect the participants' motivations, attitudes or values (Stake, 1975). Another pitfall of the traditional approach is that it fails to capture the complete program because it overlooks the on-going process (Scriven, 1967). This study, by embracing the embedded single case study design, seeks to gain in-depth understanding about CWPBS implementation, in relation to students and teachers. It provides an insight into the practice that other researchers can make a reference for their studies.

Thirdly, with the initiation of Special Education Enhancement Plan (2014-2016), inclusive education will be promoted comprehensively in compulsory education across the country (the Central People's Government of the People's Republic of China, 2014). It is anticipated that this empirical study will provide valuable data and implications for practice of inclusive education in the country.

Last but not least, previous studies tend to focus on either the student group or teacher group. Few studies investigated the two groups in-depth simultaneously. This study embraces the stance that a class-based intervention is a unity of teachers' and students' efforts, experiences, attitudes, and expectations. The groups both play vital roles and mutually influence throughout the process. Thus, this study seeks to have a comprehensive and dynamic understanding of the practice.

1.4 Structure of the thesis

This thesis has six chapters. The opening chapter begins with a general background of classroom misbehaviour in China. In particular, it provides an insight

into why Chinese teachers responded to the issue in a negative and inefficacious way. It then outlines the rationale and significances of the study and provides an overview of the investigation. The subsequent chapters expand on the issues in detail.

Chapter Two provides a detailed account of the theoretical foundation and operational framework of SWPBS and a review of the literature focusing on evidence-based practice and outcome evaluation. It then outlines the concept of the general Quality of Life and its extension theory Quality of School Life. Theoretically, students' quality of life is the primary goal of SWPBS. In this chapter, the causal relationship between SWPBS and Quality of School Life was discussed based on a review of the literature. In a similar way, the concept of teachers' sense of teaching efficacy, which is an important aspect of teachers' well being, is presented and connected with SWPBS.

Chapter Three maps the methodology of the study. It justifies the rationale of adopting embedded single case study approach and illustrated the research logic of this study. It outlines a contextual background of the school and described the participants in detail. It then presents the specific research procedures, including the methods and schedule for data collection and analysis, tactics for ensuring the quality of the study, and the preparation prior to carry out the formal data collection. The results and details of the data analysis are presented over the next two chapters.

Chapter Four presents the results of the data analysis for students' outcomes associated with the implementation. It begins with the investigation on the holistic case that covers the behavioural performance, academic achievements, and satisfaction of school life of the class. The chapter follows on the investigation of the two embedded units of analysis respectively to provide an insight into understanding students' outcomes.

Chapter Five presents the results of data analysis for teachers' outcomes associated with the implementation. These concern their treatment fidelity, repertoire of management strategies, sense of teaching efficacy, and subjective acceptance of the

implementation.

The final chapter, Chapter Six, outlines the findings and conclusions in response to the research questions. It then presents the implications for practice of school-based intervention and future research in the field of SWPBS. Finally, a general conclusion of the study is provided.

CHAPTER TWO LITERATURE REVIEW

2.1 Introduction

This chapter outlines the evolvement of positive behaviour support (PBS), discusses the benefits of implementing the model school-wide positive behaviour support (SWPBS) and its variant model class-wide positive behaviour support (CWPBS), and explains the relationships between SWPBS and two other conceptions, namely, quality of life (QOL) and teachers' sense of teaching efficacy. The topics under discussion provide theoretical and practical groundings for the evaluation of the CWPBS implementation in the present study. The chapter starts with an overview of PBS, uncovers the distinctions by comparing the approach with the parent-discipline applied behaviour analysis (ABA). The chapter then turns to school context, illustrating issues of traditional classroom management and providing the rationale for practising the three-tiered model. It then examines the implementation of the approach and its theoretical basis. Reviews of previous studies on the primary, secondary, and tertiary tiers of the model are embedded. Lastly, the chapter outlines the definition of quality of life (QOL) and its extended framework quality of school life (QSL). This theory helps to understand students' well being in relation to SWPBS. The definition and framework of teachers' sense of teaching efficacy are provided, which helps to understand teachers' well-being in relation to SWPBS.

2.2 Positive behaviour support

2.2.1 Emergence and early development

2.2.1.1 Opposition to traditional behavioural modification

One of the most criticised treatments in the field of disabilities during the 1970s and 80s was the use of behavioural modification (Matson & Taras, 1989). The core of objection was that the use of aversive strategies (e.g., overcorrection) and techniques such as electric shock (Freagon, 1990; Guess, 1987; Laski, 1987; Shapiro, 1974; Turnbull, 1986) were inhumane. In the presidential address for the American

Association on Mental Deficiency (AAMD), Turnbull (1986) criticised aversive intervention as “programmatically and ethically questionable and that there is a very high rebuttable presumption against [it]” (p.266). The stand was also taken by a number of reputable and international organisations. For instance, the Association for the Advancement of Behavior Therapy (Favell et al., 1982) developed a conditional approval for constraining the use of aversive procedure. In this document, the use of aversive procedure could only be considered when less intrusive procedures (e.g., environmental enrichment) had been tried with limited effect. Stronger opposition was taken by The Association for the Severely Handicapped (TASH), which passed a resolution to terminate the use of aversive intervention on people with severe disabilities (cited in Guess, 1987).

The aversive procedure, by definition, is a means of approach for reducing behaviours by presentation of aversive stimuli such as electrical stimuli (Alberto & Troutman, 2009; Snell & Smith, 1978). Since the process is often accompanied with negative feelings (e.g., feel pain after shock) and affects (e.g., being upset after reprimand) from the receivers, the practice is arguably immoral and abusive (Freagon, 1990; Laski, 1987). A number of researchers (e.g., Guess, 1987; Turnbull, 1986) have pointed out that the harm increases when the users have not designed an appropriate procedure or are unprepared for the consequences.

Another critique of the approach is its effects. Although a great number of studies reported the “quick-fix” effect, such as rapidly suppressing the target behaviour (see reviews of studies from Caraldo, 1991; Matson & Taras, 1989), whether it could result in other desirable effects such as maintenance and generalisation remained disputable (David & Matson, 1990; Guess, 1987). Furthermore, negative side effects resulting from the approach were evident in many studies (see research review in Guess, 1987). The most commonly reported issue was that the procedures caused resistance and avoidance behaviours from the receivers, in order to terminate the procedure. Relative studies on children with self-injurious behaviours also reported that posing

aversive stimuli actually increased the targeted behaviours (e.g., Carr, 1976) or triggered other injurious behaviours (e.g., Napolitan & Peterson, 1975; Tate, 1972).

2.2.1.2 Evolvment of Applied Behavioral Analysis (ABA)

The criticism of behavioural modification promoted advocacy for alternative approaches that offer humanity and sustainability. Williams, Hamre-Nietupski, Pumpian, McDaniel-Marx, and Wheeler (1978) pointed out that children missed the opportunity of learning socially desired behaviour while they were receiving treatment for decreasing behaviours. As a way of solving the issue, the researchers suggested that the “programs designed to decrease an undesirable behavior should always be accompanied by a program designed to increase a desirable behavior which may be substituted for the undesirable behavior” (p.282).

During that time, researchers also had been working on new paradigms of behavioural modification. Carr (1977), who was a pioneer in the movement, published his work of conceptualising the properties of self-injurious behaviour. Built on the previous research, the researcher claimed that self-injurious behaviour was driven by extrinsic or intrinsic reinforcements. Both extrinsic and intrinsic reinforcements were categorised into hypotheses that were concerned with the motivation of behaviour (see Table 2.1). A contribution of the work is calling for assessment before delivering an intervention. The assessment should identify function of a problem behaviour, which provides “a useful beginning and a basis for deciding which treatment procedures might be appropriate” (Carr, 1977, p. 812).

Table 2.1: Five Major Hypotheses of the Motivation of Self-injurious Behaviour (adapted from Carr, 1977)

Reinforcement	Hypotheses of motivation	Example
Extrinsic	Positive reinforcement	Escaping from adult’s attention
	Negative reinforcement	Terminating an aversive stimulus
Intrinsic	Self-stimulation	Head banging for a kinesthetic sense

Organic	Compulsive biting of tongue by a person with Lesch-Nyhan syndrome
Psychodynamic	Reducing the feeling of guilt

Carr's work was followed by the empirical study of Iwata, Dorsey, Slifer, Bauman, and Richman (1982). In the latter study, the first standardised methodology of functional analysis was developed. The researchers started with defining a particular behaviour (e.g., biting is defined as closure of the upper and lower teeth on the flesh of any portion of the body), and recorded the number of occurrences or nonoccurrences of the behaviour in different conditions in a scheduled interval. The data collected from the observation were then graphed to envision the behavioural pattern for determining function of the behaviour.

Taken as a whole, the research led by Carr (1977) and Iwata and colleagues (1982) promoted the evolvement of applied behaviour analysis (ABA). Unlike traditional behavioural modification, ABA emphasises the analysis of determinants of behaviour. The key to this process is the application of functional behavioural analysis (FBA).

The emergence of the term "functional analysis" can be traced back to the early 1950s. Skinner stated in *Science and Human Behavior*, "The external variables of which behavior is a function provide for what may be called a causal or functional analysis" (1953, p. 35). Nonetheless, the application was overlooked in behavioural interventions at that time. This is because the dominant paradigm of these interventions drew on the consequences of behaviour (e.g., Ayllon & Michael, 1959). The core of this paradigm is changing the probability of problem behaviour by using either termination (e.g., using punishment) or reoccurrence (e.g., using reward; Skinner, 1953). In such a causal relationship, whether the function of the targeted behaviour serves extrinsic or intrinsic motivation does not play an important role. In addition, the methodology of functional analysis had not been developed until the work of Iwata and colleagues in 1982 (Mace, 1994). The lack of standard procedures also hindered the development of functional

analysis.

With the availability of the methodology, the application of behavioural intervention has expanded from the field of self-injury to a broader range of problems (e.g., Durand & Carr, 1987; Wacker et al., 1990). The recognition of extrinsic factors promoted the delivery of interventions in natural settings other than the laboratory (e.g., Dyer, Dunlap, & Winterling, 1990; Horner, Day, Sprague, O'Brien, & Heathfield, 1991). In the school context, one of the initial decision-making models that involves FBA was developed by Gaylord-Ross (1980). In this model, decision of an intervention followed ordered steps that start with the assessment of needs. Interventions needed to follow a process from positive to negative reinforcements, as well as procedures for adjusting the environment and differentiating the curriculum. Punishments should be used in collaboration with positive procedures. The underlying rule is that interventions should be under the guidance of empirical data, and also be ethical (Gaylord-Ross, 1980; Haring, Liberty, & White, 1980). This model was adapted for developing individualised interventions for children with severe behavioural problems in the school context later on (Liberty & Haring, 1990; Snell, 1983).

The application of FBA marked a new era of behavioural intervention, wherein the dominant paradigm changed from the consequence-based to the functional-based. In the new paradigm, behavioural procedures became less aversive and also involved multicomponents for multiple benefits (Mace, 1994; Schrader & Gaylord-Ross, 1990).

2.2.1.3 Emergence of Positive Behaviour Support (PBS)

The emergence of PBS dated back to the late 1980s when growing advocacy was for approaches that embraced the ideology of normalisation and person-centered values (Carr, et al., 2002; Dunlap, Sailor, Horner, & Sugai, 2009). The principle of normalisation aims to provide the least restrictive service to people with disabilities by using “utilization of means which are as culturally normative as possible in order to establish and/or maintain personal behaviors and characteristics which are as culturally normative as possible” (Wolfensberger, 1972, p. 28). The core of person-centered

values is that humanistic values (e.g., dignity) inform the methodology by telling the worth of changing (Carr, 1996). Accordingly, a sound intervention is not only developed with a robust procedure, but also contains strategies to enhance the recipient's dignity. These values can be realised by adopting the process of person-centered planning and empower self-determination (Carr, et al., 2002). These principles contrast with the traditional behavioural approaches that place people with disabilities in restrictive environments, overlook their needs, and devalue their social roles (Wolfensberger, 1972).

While PBS was derived from ABA, its framework also contains other elements (e.g., system change) that do not feature in ABA. Moreover, PBS seeks to produce interventions in natural settings with high acceptance of stakeholders to receive sufficient behavioural improvements to ultimately change a person's lifestyle (Carr, et al., 1999a; Horner, 2000). Edward G. Carr, as well as other principle founders of PBS, in the first research synthesis of the discipline² (Carr, et al., 1999a), proposed the PBS perspective for developing a behavioural procedure as:

...becoming less a process of selecting *an* intervention, and more the construction of a comprehensive set of procedures that include change of the environment to make problem behaviors irrelevant, instruction on appropriate behaviors that makes the problem behavior inefficient, and manipulation of consequences to ensure that appropriate behaviors are more consistently and powerfully reinforced than are problem behaviors. (p. 4)

Initially, PBS was used as an alternative procedure for individuals with severe problem behaviour such as severe self-injury, or those who had been treated by consequence-based interventions that had limited effect (e.g., Berkman & Meyer, 1988; Donnellan, 1985; Dunlap, Kern-Dunlap, Clarke, & Robbins, 1991). The early studies showed that the approach benefited a broad range of problem behaviours with durable improvements. Building on the initial success, the application of PBS extended to

² The document is the first research synthesis prepared for the United States Department of Education, Office of Special Education Program PBS.

typical contexts such as school and home as a means of community-based interventions (e.g., Carr et al., 1999b; Koegel, Harrower, & Koegel, 1999). These studies illustrated multiple effects of the application, such as behavioural improvement maintenance. Although the outcomes of lifestyle change and social validity were only investigated by a small number of studies, the outcomes were promising (see a review of studies from Carr, et al., 1999a).

The public advocacy for approaches that characterise prosocial, effective, durable, and multiple beneficial, substantial efforts have been reflected in the research and application of PBS. Some of the milestones are listed below:

In 1997, the amendments to the Individuals with Disabilities Education Act (IDEA), which is a United States federal law, introduced the concept “PBS” and regarded it as one of the recommended strategies for “a child whose behavior impedes his or her learning or that of others (Section 614 /d/3/B/i, P.L. 105-17)” (cited in Sugai et al., 2000a).

In 1999, a professional periodical, *The Journal of Positive Behavior Intervention (JPBI)*, which is edited by a number of leading researchers in the field of PBS, began publication (Dunlap & Koegel, 1999). The journal is the flagship periodical of PBS.

In 2003, an international organisation aimed at “promoting research-based strategies that combine applied behavior analysis and biomedical science with person-centered values and systems change to increase quality of life and decrease problem behaviors” (the Association for Positive Behavior Support, 2007), named *the Association for Positive Behavior Support* was established.

2.2.1.4 Summary

The use of behavioural modification, particularly the use of aversive strategies and techniques, has been criticised since the 1970s for at least two major reasons, namely its inhumanity and negative side effects. Opposition to the approach promoted the development of strategies that are less aversive and more effective. The research on

functional analysis of behaviour led by Carr (1977) and Iwata and colleagues (1982) evoked a new paradigm and methodology for behavioural interventions, applied behavior analysis (ABA). With increasing advocacy for interventions that promote normalisation and person-centered values, positive behaviour support (PBS) emerged and initially was used for helping people with severe disabilities. Later, the approach was used for a wide range of problem behaviours and in typical contexts with promising outcomes. The subsequent section will introduce the theoretical base of PBS and its similarity and differences to ABA.

2.2.2 Theoretical foundation

2.2.2.1 ABA

It has been widely accepted that PBS derived from ABA along with the influences of other disciplines such as social, educational and biomedical sciences (Brown, Michaels, Oliva, & Woolf, 2008; Dunlap, Carr, Horner, Zarcone, & Schwartz, 2008; Horner et al., 2005b). ABA is an applied science for changing socially important behaviours by employing behavioural principles and experimentation founded on Skinner's work (Dunlap, 2006; Kearney, 2007; Poling, Dickinson, Austin, & Normand, 2000).

As early as 1968, the three principal founders of ABA, Baer, Wolf and Risley, published a conceptual article in which "applied" was defined as the basic characteristic of ABA. The authors further distinguished ABA from "Experimental Analysis of Behavior" (EAB) in two aspects. First, ABA studied the variables that improve behaviours, whereas EAB studied any variables that change behaviours. Secondly, ABA focused on behaviours that are socially important, whereas EAB studied any behaviour that could be controlled under experimental conditions.

The other six dimensions defined by the researchers are behavioural, analytic, technological, conceptually systematic, effective, and generality. Collectively, ABA was conceptualised to:

... make obvious the importance of the behavior changed, its quantitative

characteristics, the experimental manipulations which analyze with clarity what was responsible for the change, the technologically exact description of all procedures contributing to that change, the effectiveness of those procedures in making sufficient change for value, and the generality of that change. (Baer, Wolf, & Risley, 1968, p. 97)

These dimensions pinpointed that ABA should be fully understood as a science of behaviorism, in which technologies are developed for changing behaviours that are socially important (Cooper, Heron, & Heward, 2007). The dimensions were used as a conceptual and practical guideline for the research body since the early years of ABA (Baer & Wolf, 1987), and continue to serve current studies (e.g., Jones, 2011; Poling, 2010; Smith, 2012).

2.2.2.2 PBS and ABA: Similarities

The fundamental tenet shared by PBS and ABA is the philosophical view about behavioural change, which builds on Skinner's framework of operant conditioning (Carr, et al., 2002; Dunlap, et al., 2008). Skinner (1953, 1963) proposed that an operant behaviour was strengthened under two conditions. First, a response must occur. Secondly, the rate (e.g., frequency) of response must increase. Thus, to establish operant conditioning, it is essential to predict a behaviour that is the reflex action to the prior event or stimulus.

With the conceptual underpinning, PBS and ABA share the basic methodology and strategies of behavioural change. The methodology allows for analysing behaviour precisely to predict the relationship between stimuli and response (Skinner, 1953). PBS and ABA rely on procedures that allow for demonstration of the effect of an independent variable on a specific behaviour (Carr, et al., 2002; Dunlap, et al., 2008). The dominant research design is the single-subject design, that is, assessing the effect of an intervention on the behaviour of an individual over time (Alberto & Troutman, 2009). A basic method of measuring a behaviour is direct observation, that is, recording behaviour samples (e.g., frequency, duration) while the behaviour is occurring (Dunlap,

2006).

The strategic foundation allows for controlling the stimuli-response association so that a desired behaviour can occur and customise (Skinner, 1953). PBS has adopted the functional-based paradigm from ABA. Both PBS and ABA practitioners and researchers consider assessment of problem behaviour as a prerequisite step in the behavioural change procedure (Alberto & Troutman, 2009; Carr, et al., 2002). FBA determines the motivation of a person's problem behaviour and identifies the variables that cause and maintain the problem (see section 2.2; Binnedyk et al., 2009; Horner, 2000). The data collected from FBA are used to make decisions, including development of an intervention plan and measurement of the outcomes.

Based upon the assumption developed from the assessment, strategies for changing a problem behaviour to a desired behaviour are selected (Dunlap, 2006; Horner, 2000). According to operant conditioning, an intervention should elicit a desired response and also be strong enough to reinforce the response. PBS typically employs two types of intervention for behavioural change, namely, stimulus-based intervention and reinforcement-based intervention (Carr, et al., 1999a). Stimulus-based intervention is associated with strategies for altering the environment (e.g., antecedent control, modelling and shaping). The reinforcement-based intervention involves strategies for increasing the rate of desired behaviour (e.g., positive reinforcement). It is well understood that both types of interventions, as well as the strategies, are rooted in ABA (Risley, 1999).

2.2.2.3 PBS versus ABA: Differences

PBS is distinct from ABA because it has evolved under the influences of the inclusion movement and person-centered values (Dunlap, Kincaid, Horner, Knoster, & Bradshaw, 2014; Singer & Wang, 2009). Behavioural change is the central tenet of ABA, but it is the secondary goal of PBS. PBS practitioners and researchers embrace the stance that a sound approach enhances personal satisfaction in life. The primary goal of PBS is the improvement of quality of life (Dunlap, 2006; O'Dell et al., 2011; Sugai,

et al., 2000a), whereby a person's lifestyle is changed so that it benefits all stakeholders. Behavioural change plays an important role in realising the purpose because problem behaviour is a main impediment to quality of life (Carr & Horner, 2007). However, interventions are not only for changing behaviour, but also for establishing an efficient system and creating a positive environment. Such a basic difference further distinguishes PBS from ABA in a number of critical features.

2.2.2.3.1 Comprehensive support

In the construct of PBS, "support" refers to a comprehensive procedure that comprises two objectives. First, the support is behavioural-oriented, meaning that the use of educational procedures is for teaching and strengthening positive behaviour. Secondly, the support is context-based, meaning that the system change is for establishing an environment to maintain positive behaviour, for promotion of a positive quality of life (Carr & Horner, 2007; Dunlap, et al., 2014). From the PBS perspective, the improvement of a problem context is more important than the improvement of a problem behaviour. This is because PBS seeks to have meaningful change on people (Binnedyk, et al., 2009; Carr, et al., 2002). Thus, it is essential to maintain sustained changes, which is possible only if the context is supportive.

One principle for accomplishing these objectives is developing interventions that consist of multiple components. Some of the components go beyond the behavioural principles of ABA. This is because some external factors (e.g., teacher bias) may also trigger problem behaviour. For instance, a core element of family-based PBS is family training, including teaching parents behavioural principles, supporting a family in developing an intervention plan and identifying outcomes the family wishes to achieve as a result of the intervention. Numerous studies (e.g., Buschbacher, Fox, & Clarke, 2004; De Wein & Miller, 2009) have demonstrated that emphasis on family training facilitates behavioural intervention, promotes lifestyle change, and increases family quality of life.

Another principle is developing interventions that can be used across the full

range of time and contexts. One successful application is school-wide positive behaviour support (SWPBS; e.g., Curtis, Van Horne, Robertson, & Karvonen, 2010; Tobin & Sugai, 2005). In a typical SWPBS practice, differentiated interventions prevent the occurrence of problem behaviour in different sub-contexts (e.g., classroom, playground) within the general school context, and in different situations (e.g., transition time, lunch break) within the entire school routine.

2.2.2.3.2 System change

System change refers to the establishment of a system in which all stakeholders share common expectations and values, are adequately trained and motivated, and follow an action plan that clearly defines responsibilities and methodology (Knoster, Villa, & Thousand, 2000). Carr and Horner (2007) regarded system change as “the independent variable that best exemplifies the field of PBS” (p. 6). This is because the sustainability of PBS relies on a positive environment.

By contrast, a weakness of the ABA procedure is that it focuses on the immediate context of a problem behaviour. For example, an ABA intervention is delivered to terminate the disruptive behaviour of a student for escaping the teacher’s attention in Math classes. Even if the intervention is effective in this particular context, we cannot predict that the problem will be solved in other classes.

System change integrates behavioural supports with environment establishment so that individuals have a broader context to practise adaptive behaviour (Carr, et al., 1999a). Thus, in a PBS procedure, the same student may receive collaborated interventions across a number of settings. This is particularly useful in the context where a large group of diverse stakeholders is involved. The strategy unites all the resources within the context to minimise treatment inconsistency. Along with the development of PBS, system change has been successfully applied in context-based models such as SWPBS (e.g., Mass-Galloway, Panyan, Smith, & Wessendorf, 2008) and family-based positive behaviour support (e.g., Lucyshyn et al., 2007).

2.2.2.3.3 Centrality of internal validity

PBS and ABA have differentiated emphasis on internal validity. ABA, due to its experimental manipulation, assesses internal validity by means of microanalysis of cause and effect (Carr, et al., 2002; Cooper, et al., 2007). The quality of experimental control demonstrates the internal validity. In a typical ABA intervention, the procedure should be carefully developed and strictly followed, to ensure valid and reliable outcomes (Cooper, et al., 2007).

PBS embraces a more pragmatic stance on internal validity, however. It recognises process control as an important criterion for internal validity, but also emphasises other criteria. One of the criteria is ecological validity (Dunlap, 2006), referring to validation of practices in naturalistic situations (Meyer & Evans, 1993; Singer, 2000). A typical PBS practice commits to solving real problems in real-life contexts. Accordingly, a behavioural procedure carried out in the laboratory context with good process control is insufficient to provide internal validity, unless it can be implemented in a real-life setting (e.g., the home, the class) by stakeholders (e.g., parents, teachers) and has demonstrated the desired outcomes.

Another criterion is social validity (Dunlap, et al., 2008). The concept was developed by Wolf (1978) as the criterion for subjective evaluation for ABA research. Initially, the concept was constructed with three levels. First, the goal of a behavioural procedure should be socially significant. Secondly, the specific procedure should be appropriate for the stakeholders. Thirdly, the outcomes should satisfy the stakeholders. However, this criterion has not been accepted as a major criterion of ABA practitioners and researchers. This can be seen from the synthesis of empirical studies published between 1999 and 2005 (Dunlap & Clarke, 2008). Among the 142 original reports published by the flagship periodical, *Journal of Applied Behavior Analysis*, only 3 (2.11%) had collected data of social validity. Such neglect, as observed by Poling (2010), is still influencing current research in the field.

PBS has adopted the concept of social validity and developed the criteria for

testing the quality of interventions. In the fundamental article written by Carr and other researchers (2002), social validity was constructed into five dimensions (see Table 2.2):

Table 2.2: Dimensions of social validity (adapted from Carr, et al., 2002, p. 8)

Dimension	Sample question
Practicality	Can typical support people carry out the strategy?
Desirability	Do typical support people perceive the interventions to be worthy of implementation?
Goodness of fit	Do stakeholders agree that the strategies are appropriate for the specific context in which they are to be implemented?
Subjective effectiveness with respect to problem behaviour	Do the relevant stakeholders perceive that the problem behavior has been reduced to an acceptable level?
Subjective effectiveness with respect to quality of life	Do relevant stakeholders perceive the strategies implemented to have made a meaningful difference in the lifestyle of the individual involved in terms of increasing opportunities to live, work, go to school, recreate, and socialize with typical peers and significant others in typical community settings?

The new construct is more pragmatic than the previous construct for at least two reasons. First, it is not only associated with stakeholders' acceptability, but also with the practicality. PBS emphasises the active role played by stakeholders because sustained implementation is ensured by stakeholder participation (Carr, et al., 2002). Secondly, it is not only associated with outcomes of behavioural change, but also with outcomes of quality of life. While behavioural improvement can be demonstrated in the laboratory context, subjective satisfaction about life is only possible when an intervention has actually changed an individual's lifestyle (Carr & Horner, 2007).

A good demonstration of internal validity can be seen in SWPBS practice. In a typical SWPBS practice (e.g., Scott, 2001; Turnbull et al., 2002), the interventions are

implanted into school curriculum or management systems for solving all kinds of problem behaviours across school settings. The teachers and other staff are trained by professionals, and also collaborate with them to develop and implement the interventions. Moreover, the interventions are not only for improving student behaviour, but also for improving academic performance, teacher-student relationships and other socially desired outcomes.

2.2.2.4 Summary

Positive behavior support (PBS) is a pragmatic approach for improving quality of life and reducing problem behaviours. The major strategies used by the approach are positive interventions, systems change, and redesigning the environment (Carr, et al., 2002). It shares commonalities with ABA in the concept and strategies of behaviour change. Both approaches posit that human behaviour is acquired through learning, and can be changed through control of stimulus. Both approaches embrace evidence-based methodology, in which interventions rely on assessment of behavioural functions. Both approaches use stimulus-based and/or reinforcement-based interventions to change behaviour.

On the other hand, PBS goes beyond ABA and employs theories and methods from other disciplines. PBS embraces a socially meaningful goal, that is, enhancement of an individual's quality of life. A typical PBS practice is comprehensive support that consists of multiple components. The effects of sustainability and generalisation are ensured by system change in that stakeholders have consistent goals, supports, action plans, and evaluating criteria. The criteria for internal validity adopted by PBS and ABA are also different. ABA follows a micro-perspective that examines the causal relationship between an intervention and a specific behaviour. In comparison, PBS emphasises the ecological and social validities, whereby the procedure needs to be applied in real-life settings and seeks to include the voice of stakeholders.

In summary, although PBS is rooted in ABA, it is an interdisciplinary approach that is “placing solutions above the strictures of the science” (Dunlap, 2006, p. 59). The

subsequent section will discuss the applied model of PBS in school contexts.

2.2.3 Defining SWPBS

2.2.3.1 Issues of traditional classroom management

Problem behaviours are one of the biggest influences on classroom management and school discipline. Teachers share this concern, no matter whether they are novice teachers or experienced teachers (Giallo & Little, 2003; LeBlanc, Swisher, Vitaro, & Tremblay, 2007), from Western or Eastern societies (Little, 2005; Shen, et al., 2009). At the same time, students with problem behaviour, in particular those with severe or chronic problem behaviours, may have academic failures and social difficulties. If the problems are not improved at school, the students are likely to develop more complicated problems and encounter stressful situations as they age. Eventually, the problem may affect their lifestyle and subjective well-being (Carr & Horner, 2007).

Traditional classroom management emphasises classroom discipline to place rules for controlling events with certain qualities. Such a paradigm builds on student self-initiation and self-regulation. This means that students are expected to behave (LeBlanc, et al., 2007). In this sense, teachers have low tolerance for problem behaviour.

Student behavioural performance elicits teachers' moral sense. In societies where the educational philosophy is for serving social reconstruction (e.g., Chinese society), traditional classroom management is tied up with moral order. Good behaviour or obedience becomes an important criterion for assessing student morality (Qi & Tang, 2004). Teachers tend to attribute problem behaviour to students' volitional control (Ding, et al., 2010). Thus, students with problem behaviour, in particular those who have exerted overt problem behaviours (e.g., disruptive behaviour), are likely to be labelled as 'bad' students. At the same time, teachers display negative affect such as anger towards the students (Weiner, 1986).

Influenced by traditional classroom management and behavioural science, teachers tend to employ negative strategies, including disapproval, negative comments

and punishment, for reducing problem behaviour and controlling class order (Beyer, 1998; Cunningham & Sugawara, 1989; Hall, Panyan, Rabon, & Broden, 1968). When responding to a student with severe problem behaviour, teachers are likely to increase the intensity of negative strategies (Gitlin, 1989; Traynor, 2002), including using a louder voice and maintaining the punishment for a longer duration.

However, behavioural management utilising negative strategies has raised concerns from educational and research bodies (Rose, 1989; Walker, Colvin, & Ramsey, 1995; Welsh, 1978). One major concern is associated with its effect on students' behavioural performance. In the initial study, Lewis (2001) reported that students with disruptive behaviours were likely to be more disruptive under coercive classroom management. In the follow-up study, Lewis and the colleagues (2008) investigated students from Australia, China and Israel on their reactions to classroom management. The researchers reported that the level of student distraction increased after teachers' aggressive and punishing actions. Furthermore, negative management may be disadvantageous to long-term development of problem behaviour. A large-scale (1399 teachers from 107 schools) longitudinal study by LeBlanc and colleagues (2007) examined the association between teachers' negative strategies and the maintenance of problem behaviour. The researchers concluded that those students who had experienced negative behavioural management in primary schools, maintained or intensified their problem behaviour in high schools.

The second major concern is that teachers' negative management impedes the learning process and academic performance (Arif & Rafi, 2007; Han, 2014; Iqbal, Hamdan, & Faisal, 2013). The study by Lewis (2001) and the follow-up study by Roache and Lewis (2011) found that the more coercive management the students had experienced, the less interest and responsibility they held for learning, the higher level of withdrawal and disruption they felt for school work. In addition, teachers' coercive actions have negative side effects on students with normal behaviour as well. These students' high-level learning abilities (e.g., evaluation, creation) underperform under

negative management (Han, 2014; Hetherington, 2012; Traynor, 2002). Arif and Rafi (2007) compared the academic achievements between a group of students who had experienced physical punishment and a group who had received positive management for over six months. The researchers reported that the group who received corporal punishment had significantly lower academic outcomes than their counterparts. Students with or without problem behaviour tend to be demotivated, and passively engaged in the learning process under teachers' negative management.

The third major concern is associated with student emotional and social development (Hilarski, 2004; Rose, 1989). Roache and Lewis (2011) illustrated that the more aggression and punishment the students had experienced from their teachers, the higher extent of negative feeling they produced, and the more justification they declared from the teachers. Such a pattern was found in the student cohorts that came from typical Western or Eastern societies, or societies in between. The study indicates that negative classroom management elicits emotional distress in students, no matter in which cultures they are raised. Moreover, numerous studies have reported that coercive classroom management elicits a range of negative emotions such as embarrassment, guilt and resentment, and results in poor teacher-student relationships (Feinstein & Mwahombela, 2010; Friedel, Marachi, & Midgley, 2002; Lewis, et al., 2008; Wissink et al., 2014) .

Some teachers may integrate positive strategies (e.g., academic prompts, rewarding, praise) into traditional classroom management. Nonetheless, under the dominance of negative behavioural management, positive strategies might be misunderstood or misused (Gitlin, 1989; Traynor, 2002). Gitlin (1989) observed that teachers were not comfortable in rewarding students for desired behaviour. When asked to provide the reason, the teachers explained that the use of rewards put them in a dilemma. On one hand, they found that students responded to rewards. On the other hand, they believed that students should be intrinsically motivated, rather than stimulated by external reward. In this sense, teachers were not satisfied with the

outcomes, even though students responded well to the rewards. The reluctance to use positive strategies suggests that the value and expectation generated from traditional classroom management are somewhat contradictory to the ideology of positive strategies.

Such an incompatibility restrains the use of positive strategies. Teachers may inadequately integrate the strategies with their current classroom management. For instance, some teachers use reward only if there is not enough supervision (Gitlin, 1989). Wheldall, Houghton and Merrett (1989) observed and identified 130 teachers' responses (e.g., comments, gestures) to students. While there were slightly more positive responses (e.g., approval of academic behaviour; 55%) than negative responses (e.g., disapproval of social behaviour; 45%), teachers' responses depended on the situation. The frequency of positive responses was two times higher than the frequency of negative responses for promoting academic-related behaviour (e.g., on task), whereas for promoting social behaviours the reverse was true. Merrett and Wheldall (1993) also found that teachers tended to use positive strategies in the situations (e.g., a lesson) where they expect students to be disciplined and active. In other situations, teachers were more likely to follow the traditional classroom management.

These findings, again, reflect teachers' hesitation in using positive strategies. Furthermore, as argued by Sugai and Horner (2008), positive strategies are ineffective when used without a supporting context. From the behaviourist perspective, maintaining a desired behaviour entails sufficient practice of the association between behaviour and stimuli (Skinner, 1953). Teachers who inadequately use the strategies do not create enough opportunities for adaptation.

2.2.3.2 Need for SWPBS

The concerns of traditional classroom management and increased attention for children's well-being at school in the past three decades promoted the use of positive behavioural management. It is advocated that behavioural management needs to result in comprehensive and meaningful outcomes rather than the simple reduction of problem

behaviour (Eber, Lewis-Palmer, & Pacchiano, 2002; McQuillan, DuPaul, Shapiro, & Cole, 1996; Sugai & Horner, 2009). Horner (2000) argued that the new orientation of behavioural interventions was for creating “effective environments [that] make problem behaviors *irrelevant, inefficient, and ineffective*” (p. 97). Thus, it is essential to conduct behavioural assessment for identification and documentation of variables that trigger and reinforce problem behaviour (Sugai, et al., 2000a). Equally important is professional support for teachers, including assisting them to foster positive beliefs about classroom management and to cater for their instructional needs (Nelson, 1996; Ross & Horner, 2007; Stormont, 2001). This guideline continues to guide positive behavioural intervention to date (Dunlap, et al., 2014).

In this sense, traditional classroom management that focuses on single problems or individual students, and uses punitive, restrictive and inconsistent strategies cannot satisfy educational needs. Therefore, SWPBS has become of particular interest to researchers and educators. It emphasises a general environment that facilitates teacher instruction and student development, and uses preventative, prosocial and consistent strategies (Lewis & Sugai, 1999; Safran & Oswald, 2003; Sugai & Horner, 2009). McIntosh, Ty, and Miller (2014) in their latest review of effects of SWPBS indicated that the approach did not only improve externalising behaviour, but also benefited internalising behaviour and academic performance. The above-mentioned needs, as well as other needs such as improvement of student social competence, can be met through the approach. A comparison of the traditional classroom management and SWPBS is displayed in Table 2.3.

Table 2.3: Comparison of Traditional Behavior Management and PBS (Murdock, 2007, p. 23)

Traditional Behavior Management	PBS
Views individual as "the problem"	Views systems, settings, and skill deficiencies as “the problem”
Attempts to “fix” individual	Attempts to “address” contributing issues

	within systems, settings, and skills
Extinguishes behavior	Creates new contacts, experiences, relationships, and skills
Sanctions aversives	Sanctions positive approaches
Takes days or weeks to “fix” a single behavior	Takes years to create responsive systems, personalized settings, and appropriate/empowering skills
Implemented by a behavioral specialist often in atypical settings	Implemented by a dynamic and collaborative team using person-centered planning in typical settings
Often resorted to when systems are inflexible	Flourishes when systems are flexible

2.2.3.3 Defining features of SWPBS

SWPBS is the application of PBS in school contexts. It is a systematic and team-based approach for creating a proactive school climate and implementing evidence-based interventions for all students to achieve academic and social success (Association for Positive Behavior Support, 2007; Cohen, Kincaid, & Childs, 2007; Lewis, et al., 2010; Lewis & Sugai, 1999). It builds on the tenets of PBS, and also commits to the needs that are specific to the school context. SWPBS can thus be characterised as a *preventative, school-wide, systematic, team-based and evidence-based* approach. These defining features function together to ensure effective, durable and meaningful outcomes.

Preventative is the first defining feature of SWPBS. Unlike traditional behavioural management that focuses on consequences of problem behaviour, SWPBS emphasises prevention of problem behaviour, for two purposes (Sugai & Horner, 2009). The first is breaking up the contingencies that trigger, maintain or intensify existing problem behaviours. The second is eliminating antecedents that trigger new problem behaviours.

Procedures for prevention are organised through a continuum of behavioural support, or the three-tier preventative behavioural support (see Figure 2.1; Lewis, et al., 2010; Sugai & Horner, 2002). The primary support (tier 1) develops universal interventions for all students and teachers in the school context for maximising learning and socialising opportunities. The secondary support (tier 2) develops grouped interventions for the students who do not respond well to the primary prevention and are at-risk of more severe behavioural problems and/or academic failure. The interventions help reduce the problems and prevent deterioration. The tertiary support (tier 3) develops individualised interventions for students who do not respond to the secondary prevention and have developed intensive and/or chronic problem behaviour. Sugai and Horner (2002, 2009) pointed out that priority is given to teaching socially desired behaviour, though each tier of support provides differentiated interventions for differentiated groups.

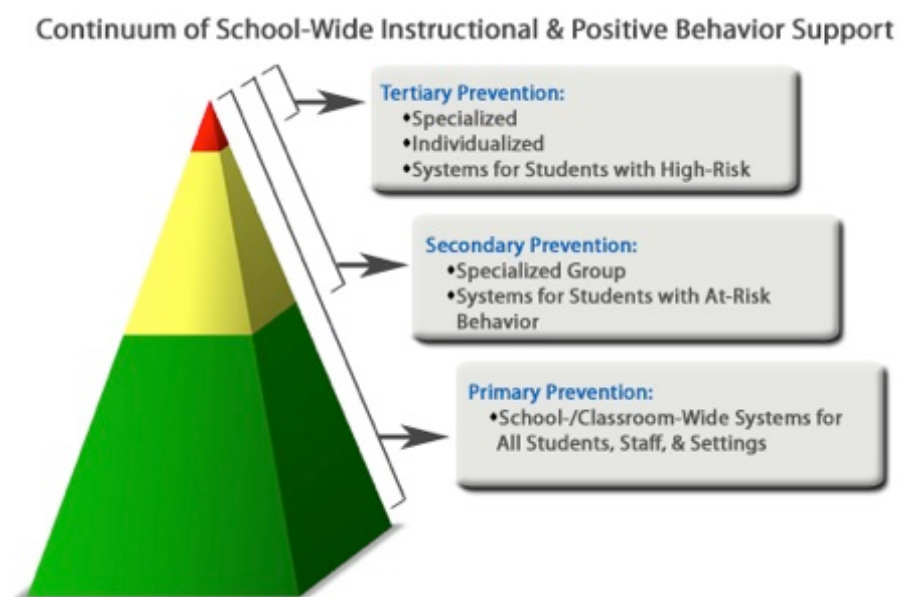


Figure 2.1: Continuum of School-Wide Instructional & Positive Behavior Support (OSEP Technical Assistance Center on Positive Behavioral Interventions and Supports, 2009; 2009)

School-wide is the second defining feature of SWPBS. PBS seeks to have meaningful practice that is effective over time and across situations for the maintenance

of adaptation (Carr, et al., 2002). Thus, a well-developed procedure should be suitable for multiple situations and benefit all stakeholders. A typical practice takes the whole school as the unit of analysis, and addresses the behavioural needs of all students in the context (Sugai & Horner, 2008). The school context has varied settings (e.g., classroom, playground), each of which has specific behavioural needs. For instance, in the classroom setting, students are expected to be on-task, whereas in the canteen they are expected to stay in the queue. SWPBS recognises such a difference and contextualises the interventions.

Systemic is the third defining feature of SWPBS. As discussed in section 2.2.2.3.2, system change is the core independent variable of PBS, which aims to sustain the improvements (Carr & Horner, 2007). Rather than the traditional behavioural interventions that are micro-organised (Carr, et al., 2002), SWPBS gives priority to establishment of a management system in which the procedures of assessment, intervention, monitoring, evaluation, teacher management, and even collaboration with families are carefully and adequately developed. The key tasks of the system may include:

- a. organizational working structures (e.g., committees),
- b. policies and guiding principles (e.g., mission statement, school purpose),
- c. operating routines (e.g., faculty meetings, communications, problem solving, action planning),
- d. resource supports (e.g., families, special education, counselling),
- e. staff/professional development structures and opportunities,
- f. administrative leadership (e.g., participation, visibility, decision making; Sugai & Horner, 2002, p. 31)

In general, the system enhances school capacity to organise the resources, take actions efficiently, and respond to any behavioural challenges.

The fourth defining feature of SWPBS is *team-based*, meaning that the development and implementation of interventions are guided by a team. PBS values

high incidence of stakeholder involvement to ensure social validity (Carr, et al., 2002). An essential way to promote stakeholders' participation is establishing a leadership team that balances school administration and stakeholders' decisions. Sugai and Horner (2002) suggested that a typical SWPBS practice should start with establishing the team that comprises school administrators, general and special teachers, parents, and other supportive experts (e.g., behavioural specialist). The overall tasks of the team may include:

- a. Developing an action plan.
- b. Monitoring and analyzing existing behavior data.
- c. Holding regular team meetings (at least monthly).
- d. Maintaining communication with staff and PBS coach/facilitator.
- e. Evaluating progress.
- f. Reporting outcomes to staff, students, parents, PBS coach/facilitator, PBS district coordinator. (Geroge, Kincaid, & Pollard-Sage, 2009, p. 378)

The fifth defining feature is *evidence-based*, meaning that a SWPBS practice is technically supported by the use of experimental and quasi-experimental research designs (Sugai & Horner, 2009). It requires the practitioners to develop interventions under the framework that consists of:

- a. explicit description of the procedure/practice,
- b. clear definition of the settings and implementers who use the procedure/practice,
- c. identification of the population of individuals who are expected to benefit, and,
- d. the specific outcomes expected. (Association for Positive Behavior Support, 2007).

The procedure ensures the interventions are empirical and effective (Luiselli, Putnam, Handler, & Feinberg, 2005; Scott, 2007). Although the procedure is rooted in ABA, SWPBS validates it in natural settings. This is because SWPBS recognises that

the sustainable way to ‘apply’ the science is through the integration of the procedure with management systems that are followed by the stakeholders (Carr & Horner, 2007; Scott, 2007).

2.2.3.4 SWPBS in the classroom setting

Although a typical SWPBS practice takes the whole school as a unit, the approach can be also designed for a particular setting within the school context (Sugai & Horner, 2008). This is because SWPBS is an ecological approach, and identifies the different educational needs that are associated with different contexts. Recently, a study by Mathews, McIntosh, Frank, and May (2014) suggests that intervention in classroom system is the critical feature that predicts sustained implementation of the broad SWPBS. The study demonstrated that teaching and acknowledging expected behaviour and providing additional support within classroom system were the strongest predictors of sustained implementation.

The class-wide positive behavior support (CWPBS; Lohrmann & Talerico, 2004) is a variation of the application of SWPBS. The classroom is the main place for academic teaching and learning. Problem behaviours in the setting may be distinct from the problems that occur in other school settings. Furthermore, these problem behaviours have been documented as impacting academic achievements. For instance, assignment incompleteness is a problem behaviour that is more likely to occur in the classroom setting than any other school settings. Studies (e.g., Cancio, West, & Young, 2004; Theodore et al., 2009) have reported that students with improved assignment completion also had improved accuracy of assignments and better outcomes in achievement tests.

CWPBS can be implemented with or without the broader school-wide support in place. In the case where the school-wide support has not been developed, the implementation of CWPBS can be applied in one or a few classes as a pilot or special project. For example, Lohrmann and Talerico (2004; see also Table 2.4) evaluated a class with CWPBS implementation where the school did not implement school-wide

positive behaviour support. The class was a self-contained classroom that consisted of ten students and four teaching staff for reading, language arts, and math. The behavioural expectations and interventions were developed by the teachers and professionals for the class. Large reductions in calling out, incomplete assignments and out-of-seat behaviour were reported as the outcomes of the practice.

In other cases where the school-wide practice is already in place, an embedded CWPBS can be used to cater for the special needs of one or a few classes. For instance, Kamp and colleagues (2011; see also Table 2.5) reported that the CW-FIT model could be applied in the schools that already had SWPBS. The CW-FIT model is a function-related and evidence-based approach for high-risk classrooms. In the study, the selected classes had a history of a high rate of office referrals and students at-risk of Emotional/Behavioral Disorders, compared with overall performance in the schools. The application of the model has two levels of function. At the school level, it is a part of the secondary prevention of the entire SWPBS practice. All the students in the selected classes are identified as the targeted group due to their poor performances. At the class level, the model is applied as a separate CWPBS practice. Large decreases in disruptive behaviour and increased on-task behaviour were reported as the outcomes of the practices.

2.2.3.5 Summary

This section outlines the critical features of school-wide positive behaviour support (SWPBS). The model evolved out of a need for a proactive approach for classroom management and school-wide discipline (Sugai & Horner, 2008). The five critical features, namely, preventative, school-wide, systemic, team-based, and evidence-based, perform together to ensure meaningful outcomes with ecological and social validity.

Given the uniqueness of the classroom context, SWPBS can be altered to the model of class-wide positive behaviour support (CWPBS). CWPBS can be used as an independent practice in the school context or an embedded project in whole school

practice. When used in the latter situation, the behavioural expectations need to be consistent with the school-wide expectations. The next section will present the key elements for implementing SWPBS. It also will illustrate the general procedure and review the studies for the three supports respectively.

2.2.4 Implementing SWPBS

2.2.4.1 Key elements

SWPBS is not a strategy or curriculum, but a decision-making framework for developing interventions and implementing them through a continuum of preventative supports (Association for Positive Behavior Support, 2007; Sugai, Flannery, & Anderson, 2009). The implementation entails the integration of four elements (see Figure 2.2; Sugai & Horner, 2002, 2006).

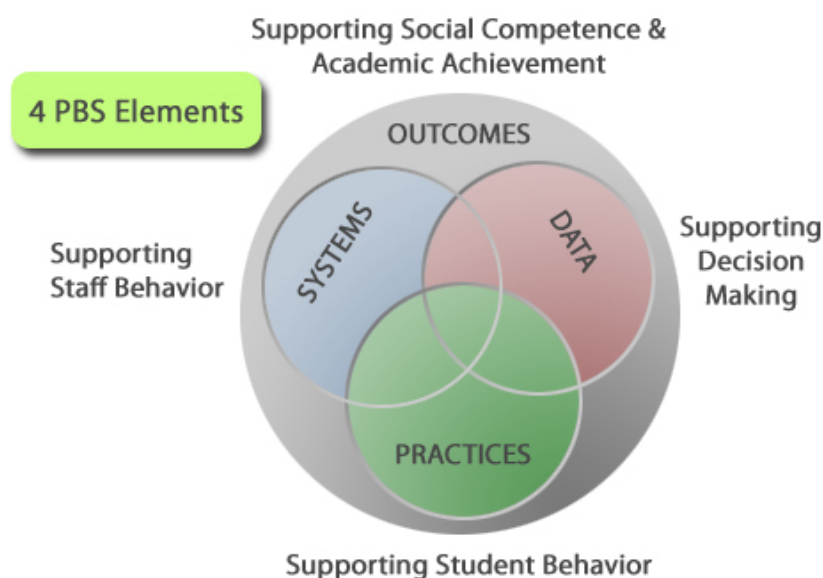


Figure 2.2: Four Elements of SWPBS (OSEP Technical Assistance Center on Positive Behavioral Interventions and Supports, 2009)

First, SWPBS is guided by measurable and achievable *outcomes* that are valued by stakeholders such as students, parents, teachers, and school administrators. The outcomes reflect those most lacking in the school context, and guide interventions to respond to those needs (Sugai & Horner, 2002). SWPBS requires careful identification of expected outcomes so that efforts can be appropriately and sustainably put forth to

meet the needs. To ensure reliable outcomes, it is essential to follow a team-based process for managing assessment and evaluation. This can be seen from empirical studies on the primary, secondary, and tertiary preventions reviewed in the section 2.2.4.3, 2.2.4.4, and 2.2.4.5 (see also Table 2.5, 2.6, and 2.7), most of which emphasised such a process.

Secondly, SWPBS relies on *data* to guide decision-making. Data are used for any decision-making, including development of a new intervention, evaluation and modification of the current intervention, and monitoring and evaluation of an outcome, throughout the implementation (Irvin et al., 2006; Sugai, et al., 2009). Empirical studies (e.g., Curtis, et al., 2010; Eber et al., 2012; Mitchell, Bradshaw, & Leaf, 2010; Young, Britton, & Simonsen, 2010) suggest that some sources of data have been commonly used in the process, including records of direct observation and existing school discipline systems. Direct observation is a major method for assessing, monitoring and evaluating in PBS practices (see also sections 2.2.1.2 and 2.2.2.2.). Existing school discipline systems such as Office Discipline Referrals (ODR) and suspension records are also preferred because they are corresponding to school expectations and engagements. It is worth noting that a great number of practices rely on multiple sources of data for decision-making (Mitchell, et al., 2010; Nelson, Martella, & Marchand-Martella, 2002; Turnbull, et al., 2002).

Thirdly, SWPBS is realised by sustained use of *practices* that are evidence validated. Along with the development of SWPBS, research has demonstrated many effective and practical strategies, including social skills training, active supervision, group contingency, token economy, check-in/check-out monitoring system (CICO), and response to intervention model (Colvin, Sugai, Good, & Lee, 1997; Fairbanks, Sugai, Guardino, & Lathrop, 2007; Kamps, et al., 2011; McCurdy, Kunsch, & Reibstein, 2007; Todd, Horner, Meyer, & Campbell, 2008; Young, et al., 2010). Although SWPBS does not designate any particular strategy, some strategies may be more appropriate than others, in some conditions. For instance, considering time and effort efficiency, active

supervision is more suitable for all students, whereas, the CICO is more appropriate for a group or individual students. The principle of selecting an appropriate strategy is to maximise expected outcomes and support sustained implementation (Sugai & Horner, 2002).

Fourth, SWPBS is supported by *systems* that promote effectiveness and efficiency. The systems work as school routines and policies that define organisational structure, principles, routines, resource supports, staff development, administrative procedure, and collaboration with other stakeholders (Sugai & Horner, 2002). Well-developed systems establish accurate and sustained implementation, and also enable the school's capacity to deal with all kinds of behavioural problems (Horner et al., 2004). Evaluative studies (e.g., Debnam, Pas, & Bradshaw, 2012; Simonsen et al., 2012) reported that schools that have well-developed systems and implementation with high fidelity had the most positive student outcomes in behavioural performance and academic achievement.

2.2.4.2 Three-tiered preventative logic

The practice of SWPBS is often organised in a three-tiered preventative model (see Figure 2.1). The logic is that problem behaviour has different types and levels (Sugai & Horner, 2008; Sugai, Sprague, Horner, & Walker, 2000b). It is virtually impossible to have a single intervention that responds to all the behavioural needs in a school. Therefore, the behavioural procedures need to be tailored into different levels. The founders of the three-tiered preventative model (Walker et al., 1996) suggested identifying three types of students, namely, students with normal behaviour, those at risk for developing problem behaviour, and those who have manifested severe problem behaviour, before developing interventions. More importantly, the three types of students are served by a normal-to-intensive continuum of supports, whereby each tier responds to problems that have specificity, intensity, and complexity in common. The key features of each tier of support are illustrated in Table 2.4.

Table 2.4: Key Features of Positive Behavior Support (PBS) Across Intervention Levels
(adapted from Scott & Eber, 2003, p. 132).

Key feature of PBS	School-wide PBS process (primary)	Individual PBS process (secondary and tertiary)
Definition & measurement of lifestyle outcomes	School-wide consensus regarding expectations and the steps necessary to maximize success across all students. Monitor behavior across the school to evaluate system.	Collaborative team consensus regarding individualized expectations and the steps necessary to maximize small group or individual student success. Monitor individual or small group behavior to evaluate plan.
Foundation in behavioral science	Collect and analyze school-wide data to determine predictable relationships between the environment and behavior. Develop functional and appropriate instruction, facilitation, and consequences across all students.	Collect and analyze student data to determine predictable relationships between the environment and behavior. Develop functional and appropriate instruction, facilitation, and consequences for small groups and individual students.
Reliance on validated and practical interventions	Use explicit instruction and develop instructional routines and physical arrangements/placements that predict school-wide student success four times more often than failure. Team designs strategies unique to their school that are practical and realistic for all teachers and the maximum number of students.	Use explicit instruction and develop instructional routines and physical arrangements/placements that predict individual and small group student success four times more often than failure. Collaborative team designs strategies unique to individual student needs but that are practical and realistic for involved teachers and students.
System change to support effective practices	School uses data to make policy and procedural decisions. Proactive procedures are expected, monitored, reinforced across all school stake- holders for all students in the school.	Collaborative team uses data to make policy and procedural decisions. Proactive procedures are expected, monitored, reinforced across all involved stakeholders for an individual or small group of students.

2.2.4.3 The primary support

2.2.4.3.1 Overview

The primary support is universal support for all students and staff across a broad range of settings (e.g., classroom, playground, canteen; Lewis, et al., 2010; Sugai & Horner, 2002). The primary goal is establishment of a proactive climate to “significantly reduce or eliminate as many problem behaviors and increase as many appropriate behaviors as possible for as many students in the school as possible” (Turnbull, et al., 2002, p. 380). A typical procedure consists of four ordered elements (Sugai & Horner, 2002):

- a. Defining three to five positive expectations (e.g., be respectful, be prepared, and be helpful) and teach them to all students across all settings.
- b. Developing reinforcement systems (e.g., positive feedback, token economy) to encourage expected behaviour.
- c. Developing procedures for preventing problem behaviour, including clearly defining problem behaviours, adjusting environment to eliminate stimuli that cause the problem behaviours.
- d. Developing procedures for recording, examining and updating current practices for maintaining or strengthening the prevention.

It is suggested that the majority of students (over 80%) can benefit from the support (Muscott, Mann, & LeBrun, 2008; Sugai, et al., 2000b). Original reports and evaluative studies demonstrated that implementation with high fidelity has resulted in reductions of ODR, suspension rates, and incident rates (Curtis, et al., 2010; Mitchell, et al., 2010; Young, et al., 2010), as well as improvements in academic achievements (Eber, et al., 2012; Horner et al., 2009) and school climate (Bohanon et al., 2006; Nelson, et al., 2002). Comparative studies (e.g., Eber, et al., 2012; Luiselli, et al., 2005) further reported that schools with the primary support in place have resulted in fewer students who need intensive behavioural support than those without the primary support.

2.2.4.3.2 Review of studies

Three studies that focus on the practice of primary support in primary school contexts are reviewed in this section (see Table 2.5). The first study (Mitchell, et al., 2010) investigated 37 schools, in which 21 were randomly assigned to implement SWPBIS and 16 were assigned as the comparison group. SWPBIS is one of the most successfully models for primary support. It has been implemented in more than 18,000 schools across the United States (OSEP Technical Assistance Center on Positive Behavioral Interventions and Supports, 2013). Due to the sample size, the study did not provide specific intervention procedures by each school. Measured student outcomes included ODR, suspension rates and academic achievement tests.

Unlike the first study in that the practices were implemented across all school settings, the implementation in the second study (Lohrmann & Talerico, 2004) focused on the classroom setting. It was designed and implemented by classroom teachers with the assistance of researchers. Group contingency was used to reinforce the expected behaviours (stay in your seat, complete assignments, and talk when it is your turn). Measured student outcomes included observations of three problem behaviours (out of seat, incomplete assignments, and calling out), which had been defined by the teachers.

The third study (Colvin, et al., 1997) adopted a similar research design as the second study, but focused on three non-classroom settings (entering the school building, moving to the canteen, exiting the school building). The practice was designed and implemented by the PBS team that consisted of the principal, grade-level representatives, and support staff representatives. Pre-correction and active supervision were used to encourage expected behaviours and prevent problem behaviour. Measured student outcomes included observed problem behaviours (running, pushing, shouting, sliding, throwing, and/or displaying other rule violation behaviours) that were defined by the team.

Although the three studies involved different school settings and used different strategies, they all emphasised definition and instruction of expected behaviour, and

establishment of a proactive environment to foster positive changes for the students. For student outcomes, all three studies reported decrease of problem behaviours (see Table 2.4), most of which were substantial. In addition, the first study measured outcomes on standardised achievement tests throughout the implementing year. The results showed that greater academic achievements were found in the schools with the implementation than the comparison schools.

Table 2.5: Studies of the Primary Support

Reference	Participants	Research design	Key elements of practice	Measured student outcomes
(Mitchell, Bradshaw, & Leaf, 2010)	37 primary schools (21 with SWPBIS vs. 16 without SWPBIS)	A 5-year longitudinal randomised controlled trial study	<p>Packed school-wide interventions, procedure included:</p> <ul style="list-style-type: none"> a. Established a PBS team b. Provided PBS coaching c. Defined behavioural expectations d. Taught behavioural expectations to all students e. Developed a rewarding system f. Developed an agreed-upon system to respond to behavioural violations g. Developed a formal system for data-based decision making 	<p>Office discipline referral (ODR) reduced significantly for schools with SWPBIS (schools without SWPBIS do not have ODR system).</p> <p>Suspension rates reduced significantly for schools with SWPBIS but not for schools without SWPBIS.</p> <p>Scores of standardised academic achievement tests tended to be greater for schools with SWPBIS than schools without SWPBIS, though the discrepancy between two cohorts is not statistically significant.</p>
(Lohrmann & Talerico, 2004)	A primary school self-containing classroom that contains 10 students, 2 full-time teachers, and 2 part-time teaching assistances	A multiple baseline design across three subject areas (Reading, Language arts, and Math)	<p>Class-wide interventions, procedure included:</p> <ul style="list-style-type: none"> a. Established a PBS team b. Defined behavioural expectations c. Taught behavioural expectations to the class d. Used group contingency as strategy for increasing expected behaviours e. Developed a rewarding system 	<p>Substantial and steady decrease in occurrence was observed for talk-out behaviour for 3 subjects area.</p> <p>Substantial and steady decrease in occurrence was observed for incompleting assignments and out-of-seat behaviour for subjects of Reading and Language art, but less convincing for subject of Math.</p>
(Colvin, Sugai, & Good, & Lee, 1997)	A primary school that contains 475 students and 42 staff	A multiple baseline design across 3 transition settings (entering the school building, moving to the cafeteria for lunch, and exiting the school)	<p>School-wide interventions, procedure included:</p> <ul style="list-style-type: none"> a. Established a PBS team b. Defined behavioural expectations c. Provided PBS coaching d. Used precorrection and active supervision as strategies for increasing expected behaviours 	<p>Substantial and overall steady decrease in occurrence was observed for problem behaviour for 3 transition settings.</p>

2.2.4.4 The secondary support

2.2.4.4.1 Overview

The secondary support is a group-focused intervention for students who need more intensive interventions than they had in primary support (Sugai & Horner, 2009). The primary goal is providing low-intensity and efficient interventions for a group of students at risk of academic and/or social failure, and preventing problems from deteriorating (Hawken, Adolphson, MacLeod, & Schumann, 2009; Scott & Eber, 2003). It is suggested that a relatively small proportion (5 to 15%) of the student population would need the prevention (Sugai, et al., 2000b).

The support consists of three key procedures, namely, assessment, intervention, and evaluation (Hawken, et al., 2009). First, the PBS team should identify a group of students and assess their educational needs. Common strategies include teacher nomination (e.g., Fairbanks, et al., 2007), assessing ODR (Sugai, et al., 2000b), using standardised behavioural rating scales (e.g., Stage, Cheney, Lynass, Mielenz, & Flower, 2012), simplified FBA (Crone & Horner, 2003), and multiple criteria (e.g., Kamps, Kravits, Rauch, Kamps, & Chung, 2000; Todd, et al., 2008). Secondly, building on the assessment, similar interventions would be provided across the group of students. Commonly used strategies with promising outcomes include the CICO, social skills instruction (e.g., Lane et al., 2003), and group contingency (e.g., Fairbanks, et al., 2007; Kamps, et al., 2011). Finally, procedures for recording, evaluating and updating the current intervention should be in place.

At the stage of intervention, the study by Debnam, Pas, and Bradshaw (2012) suggested that the CICO has been used the most widely by schools. The CICO system, also called the Behavior Education Program (BEP), is a structured daily support for students who need frequent feedback and intensive monitoring from adults (Hawken, et al., 2009). At the same time, the system requires low effort because it takes less than a half hour for a teacher to complete the procedure in a school day. It can be used to support a moderate-sized population and integrated into school or class routine without

much workload (Crone, Hawken, & Horner, 2010). In a typical CICO practice (e.g., Filter et al., 2007; Todd, et al., 2008), a daily report card that contains three to five behavioural expectations is carried by the student throughout the school day. The student checks in at the beginning of a school day and checks out at the end of the day. If the student's performance reaches the expectation, he or she may receive a reward.

As a part of the continuum of behavioural support, secondary support supplements primary support, as well as reducing the density of tertiary support. Hawken and colleagues (2009) provided a summary of original studies of secondary support that contained the description of the participants, key features of the study, and intervention outcomes for each study. Of the 22 studies, 13 (59%) reported reductions or significant reductions of high risk or disruptive behaviours, 11 (50%) reported increases or significant increases of expected behaviours such as academic engagement, 5 (23%) reported reductions of ODR, and 9 (41%) reported other outcomes such as reduction of drop-out rate and improved teacher-student interactions. In particular, the reviewed studies that used the CICO had demonstrated large reductions (-50 to 80%) of ODR.

2.2.4.4.2 Review of studies

Four studies that involve practices of secondary support in the primary school context are reviewed (see Table 2.6). All the participating schools in these studies had general SWPBS in place. The implementation in the first two studies was delivered across all school settings, whereas the implementation in the other two studies was developed in the classroom setting. This indicates that while secondary support is associated with school-wide implementation (primary support), it can be specially developed for a particular setting as well.

At the stage of assessment, the first three studies involved individual participants who were identified by multiple criteria (the first study), behavioural scales (the second study), or teacher nomination (the third study). The fourth study (Kamps, et al., 2011) adopted a variant model of SWPBS in that entire classes were identified as the

participants. The most frequent problem behaviours identified in the four studies involved disruptive behaviour, noncompliance, and inappropriate physical contact. This suggests that the behavioural pattern of this group is likely to be external and violating.

At the stage of intervention, review of these studies suggests that an integration of multiple strategies is preferred for secondary support. All the studies used at least two strategies, including the CICO, social skills training, and group contingency. In particular, the intervention in the fourth study (Kamps, et al., 2011) was an integration of three different strategies. Despite diversity of strategies, procedures for the support share some common features. Fairbanks and colleagues (2008) concluded that practices in secondary support emphasised instructions on target skills, self-monitoring and peer tutoring, acknowledgement of appropriate behaviours, and positive feedback on desired behaviours. These features ensure the coherence between the secondary and the primary supports, including the behavioural expectations and interventions. At the same time, procedures developed with these features are convenient for teachers to implement.

As for the outcomes, the four studies reported substantial and steady reductions in problem behaviour and increases in desired behaviour. Although the study by Fairbanks and colleagues reported six of ten participating students who needed further individualised plans (tertiary support), four still showed sufficient reductions in problem behaviour at CICO 75%, but could not maintain the effect at CICO 80%. Thus, these students had low response to, rather than no response to the intervention. In general, the effect indicated by the four studies and other empirical studies (e.g., Hawken & Horner, 2003; Smith, Lewis, & Stormont, 2010) support the viewpoint that secondary support helps children who are at-risk of more intensive and problematic behavioural performance in diverse settings and educational levels.

Table 2.6: Studies of the Secondary Support

Reference	Participants	Research design	Key elements of practice	Measured student outcomes
(Todd, Horner, & Meyer, & Campbell, 2008)	4 students in a primary school	A single-subject multiple baseline design	<p>Interventions across school settings, procedure included:</p> <p>a. Students were selected based on the procedure:</p> <p>(1) Administrator nomination</p> <p>(2) Teacher verification</p> <p>(3) Parental consent</p> <p>(4) Student assent</p> <p>b. FBA for identifying problem behaviours</p> <p>c. CICO:</p> <p>(1) Check-in with a school staff, receiving a daily CICO report card</p> <p>(2) Approaching teacher for feedback about student behaviour at 5 times during the day. Teacher assigns points to the student based on the behaviour.</p> <p>(3) Parents sign the report card and the students bring the cards back to school for the next morning check-in.</p> <p>Interventions across school settings, procedure included:</p> <p>a. Using the Student Risk Screening scale to screen and group the participating students.</p> <p>b. Social skills training for 10 weeks. Each lesson is planned in a role-play format that has 5 stages: tell, show, do, follow through and practice, and generalisation.</p>	<p>An average 17.5% reduction in the problem behaviours from mean baseline to mean CICO level was found for 4 students.</p> <p>Mean ODR per day across 4 students decreased from 0.14 to 0.04.</p> <p>Substantial and steady decrease in occurrence was observed for disruptive behaviours in the classroom setting and negative social interactions on the playground for all students.</p> <p>Increases in percentage of academic engaged time were observed for all students.</p>
(Lane et al., 2003)	7 students in a primary school	A single-subject multiple baseline design		

Table 2.6: Studies of the Secondary Support

Reference	Participants	Research design	Key elements of practice	Measured student outcomes
(Fairbanks, Sugai, Guardino, & Lathrop, 2007)	10 students in a primary school	A single-subject multiple baseline design	Interventions in the classroom setting, procedure including: a. Teachers nominated the participating students b. CICO: (1) Check-in, students carry CICO cards to all classes (2) Teachers rate student behaviour at the end of designated time. c. Group contingency: If the participating students earn sufficient points, the class earns a reward.	Substantial and steady decrease in occurrence was observed for problem behaviour for 4 of 10 students. The rest students were not sufficiently responsive to CICO and needed individualised supports.
(Kamps et al., 2011)	107 students (included 8 target students with EBD risk) from 6 classrooms of 3 primary schools	A reversal single-subject design	Class-Wide Function-related Intervention Teams intervention, procedure included: a. 8 target students were selected by teacher nomination and use of the Systematic Screening for Behavior Disorders b. Social skills training: Each lesson is planned in a direct instruction model: defining, modeling, role-playing, feedback from the teacher, and practice. c. Group contingency: consists of a game format with class teams of two to five students, and the use of a token economy to reward the team with ALL members engaged in appropriate behaviours. d. Self-management (for target students): Individual students having a minichart that matched the group goal of the class. They reward themselves a point for appropriate behaviour.	Large increase in percentage was observed for class-wide on-task behaviour for all classes. All targeted students were observed having decrease in disruptive behaviour and increase in on-task behaviour, with 6 of them had large percentage of improvements.

2.2.4.5 The tertiary support

2.2.4.5.1 Overview

The tertiary support develops an individualised behavioural plan for students who need intensive and specialised interventions. It is suggested that approximately 1-5% students may not be responsive to the grouped intervention, and need individualised support (Sugai & Horner, 2006). Rather than interventions at the primary or secondary supports that emphasise problem behaviour, interventions at the tertiary support give priority to individual students' needs (Lewis, et al., 2010). Thus, the intervention at this stage is the most intensive and specialised in the continuum of behavioural supports.

The key of tertiary support is function-based support, that is, an integration of FBA and function-based intervention (Anderson & Scott, 2009; Turnbull, et al., 2002). The goal of FBA is development of a hypothesis for explaining the occurrence of the problem behaviour, including identifying factors that trigger and reinforce the problem behaviour (Crone & Horner, 2003). A typical FBA consists of four steps:

- a. Defining a problem behaviour
- b. Identifying the relationship between the behaviour and environment
- c. Hypothesising the function of behaviour
- d. Verifying the hypothesis. (Scott, Anderson, Mancil, & Alter, 2009)

Often, the assessment is organised by a team that involves people who are familiar with the student (e.g., parent), familiar with school curriculum and routine (e.g., teacher), and those with expertise in a particular area (e.g., behavioural therapist).

The hypothesis generated from FBA is used for developing a function-based support plan. The key elements of a function-based plan include antecedent control, instructional strategies, and contingency reinforcement (Dunlap, Iovannone, Wilson, Kincaid, & Strain, 2010b; Ross & Horner, 2007). The procedure of delivering the intervention consists of five steps:

- a. Defining an appropriate replacement behaviour
- b. Developing a procedure for teaching the expected behaviour

- c. Establishing an environment that facilitates the intervention, including physical arrangement and routine
- d. Developing the consequences for exertion of expected behaviour and problem behaviour, including reinforcement and correction
- e. Developing monitoring and evaluative procedures. (Scott, et al., 2009)

The effectiveness of function-based support in the behavioural domain was reported before the innovation of SWPBS (Lewis & Sugai, 1993; Vollmer & Northup, 1996). SWPBS researchers (e.g., Dunlap, et al., 2010b; Young, et al., 2010) proposed that the integration of function-based support and SWPBS could result in better outcomes for at least two reasons. First, in SWPBS practice, function-based support is linked to the school- or class-wide expectations. Thus, the intervention students have more opportunities and a broader context to practise the adapted skills and behaviours. As a result, the effect of function-based support is maintained (Lewis, et al., 2010). Secondly, the database established in SWPBS provides multiple and traceable data for assessing individual students' needs, which enhances the validity of assessment (Sugai, et al., 2000a). Medley, Little, and Akin-Little (2008) compared the outcomes of function-based supports in schools with SWPBS in place and those without SWPBS. The results showed that the supports in schools with SWPBS were more adequately developed and yielded better outcomes in behavioural improvement, staff satisfaction, and environmental change, than those developed in schools without SWPBS.

The Illinois Positive Behavior Interventions & Supports Network (Eber, et al., 2012) completed a 5-year longitudinal evaluative study of 234 students who were served by tertiary support from 63 schools across 15 districts. The study reported steady reductions of problem behaviour and increases of positive behaviour in the students. This resulted in large reductions of ODR (-43%), out of school suspension (-40%) and placement risk for being at home, school and other communities. At the same time, large or significant increases of classroom and school behaviour functioning, emotional functioning, and social skills were reported.

2.2.4.5.2 Review of studies

Three studies that involved implementation of tertiary support in the primary school context are reviewed (see Table 2.7). The first study (Iovannone et al., 2009) measured the outcomes of the Prevent–Teach–Reinforce (PTR) model on 245 students. PTR is a standardised model of tertiary support, which is aligned with procedures of function-based support. Due to the size and diversity of the sample, the study did not provide detailed information about the procedure for each participating student.

In the second study (Fairbanks, et al., 2007), four students who had low response to secondary support received function-based interventions. A descriptive procedure for each student was provided. The FBA generated one or a few hypotheses of problem behaviour for each student, including acquiring adult attention and escaping from work. The interventions were developed based on the functional hypothesis and the procedures at the previous prevention.

The third study (Lane et al., 2007) involved two individual participants, one studied in a primary school and the other studied in a middle school. A descriptive procedure for each student was provided. Taking the primary school participant as an example, FBA identified that the function of nonparticipation (defined problem behaviour) was for escaping from the teacher and peer attention. Interventions that consisted of three key strategies, namely, antecedent control (e.g., setting a goal of participation), reinforcement (e.g., offering a break from participation when the student meets the goal), and extinction (e.g., verbal reminding and providing another chance when nonparticipation displayed), were delivered for increasing student participation.

The procedures demonstrated by the three studies are consistent with the framework proposed by SWPBS researchers (see section 5.2.3.1), in which FBA and function-based intervention are core elements. In addition, these studies also revealed that teacher training is an important part of the implementation. The first and third studies took teacher training as a key element of the models. Although the second study did not provide formal teacher training sessions, the researchers provided consultations

with the participating teachers. All these researchers had recognised the importance of the teacher factor in treatment fidelity. This is because the individualised interventions are more professional, skill demanding and time consuming than the other two supports.

Promising outcomes have been reported by the three studies. The participating students, who did not respond well to the grouped interventions, showed a drastic decrease in problem behaviour (e.g., in compliance) and an increase in desired behaviours (e.g., academic engaged time) in the classroom setting (the second and third studies) or across multiple settings (the first study). In addition, all three studies reported that the participating teachers had performed a high level of fidelity treatment and held high acceptance of the interventions. This indicates that although the function-based support is technically demanding, teachers who received adequate training can implement it with efficacious outcomes.

Table 2.7: Studies of the Tertiary Support

Reference	Participants	Research design	Key elements of practice	Measured student outcomes
(Iovannone et al., 2009)	245 students from K-8 from 65 schools across 5 districts	A randomised controlled trial study	The Prevent-Teach-Reinforce (PTR) intervention, procedure included: a. Established a PBS team b. Defined social, behavioural and academic goals c. FBA for assessment d. Functional-based support, included: (1) Selected two to four strategies from each of the three PTR categories (2) Training for teachers e. Evaluation	Significantly higher social skills scores and academic engaged time rates and significantly lower problem behaviour scores were measured in the PTR group than the comparison group.
(Fairbanks, et al., 2007)	6 students in a primary school	A single-subject multiple baseline design	All participating students received CICO at the secondary tier for the classroom setting. 4 of them further received individualised behavioural supports, and the other 2 remained at the secondary tier as the controlled group. Procedure included: a. Established a PBS team b. FBA for assessment c. Functional-based support, included: (1) Response to desired behaviour, e.g., verbal praise, privilege (2) Response to problem behaviour, e.g., losing points	4 students who received the tertiary interventions demonstrated steady decrease in problem behaviour. Mean percentage of problem behaviour of each of the students was larger than the controlled students.
(Lane et al., 2007)	1 first grade student in a primary school and 1 eighth grade student in a middle school	A single-subject design	General procedure included: a. Established a PBS team b. FBA for assessment c. The Function-based Intervention Decision Model, included: (1) Antecedents control (2) Reinforcement (3) Extinction for reoccurrence of problem behaviour (4) Teacher training	Substantial and steady increase in occurrence was observed for participation for the first grader. Substantial and steady increase in occurrence was observed for compliance for the eighth grader.

2.2.5 Barriers impeding implementation

While successful SWPBS practices have been documented, a number of studies (e.g., Muscott, et al., 2008; Simonsen, et al., 2012) demonstrated that SWPBS with low

implementation were less successful or could not maintain positive outcomes over time. Simonsen and colleagues (2012) compared ODR, out-of-school suspensions, total suspensions, and scores of standardised achievements tests (Reading and Math) between schools (total sample size=428) implemented with either high fidelity or low fidelity over eight years. The researchers reported that the cohort with high fidelity resulted in better and sustained behavioural and academic outcomes than the cohort with low fidelity. In particular, the out-of-school suspensions and total suspensions were statistically lower, and the scores of Math test was statistically higher on the cohort with high fidelity, compared with their counterparts.

Understanding factors that affect the effectiveness of SWPBS has become a growing interest in the discipline. To understand this question, it is essential to understand the perceptions of those who have implemented or experienced the practices (Vaughn, Klingner, & Hughes, 2000). In an initial study, Hieneman and Dunlap (2000) interviewed three groups of key stakeholders (parents, trainers, and service providers) who had substantial experiences in community-based PBS, and identified 12 factor categories (see Table 2.8). In a subsequent study (Hieneman & Dunlap, 2001) to identify the most influential factors, the researchers reported that buy-in with intervention, relationships with individuals, and behavioural support plan design were rated as top priorities by the key stakeholders. In particular, buy-in with intervention was regarded as the most important factor for PBS implementation.

Table 2.8: Factors Affecting the Outcomes of Community-Based Behavioral Support (adapted from Hieneman & Dunlap, 2001, p. 68)

Factor	Factor category description
Person characteristics	Capability of focus person to respond to intervention due to their physiological status, existing competencies, and level of motivation
Behavior nature and history	Severity, frequency, and history of the focus person's problem behavior
Buy-in with intervention	Personal investment and focus of support providers with regard to providing effective behavioral support

Support providers' capacity	Capability of support providers to use the interventions due to their personal resources (e.g., knowledge, skills, stamina)
Relationships within individual	Nature of the interpersonal relationships between the focus person and support providers (e.g., trust, connectedness)
Behavioral support plan design	Degree to which the behavioral support plan incorporates components based on a comprehensive functional assessment
Implementation integrity	Extent to which the behavioral support plan is implemented accurately and consistently, and monitored over time
Nature of physical environment	Organization and availability of resources in the physical environment (e.g., time, schedule/routines, materials)
System responsiveness	Flexibility within systems to respond to individual needs
Match with prevailing philosophy	Alignment of the behavioral support plan with the philosophy, values, and priorities of the family and other support providers
Collaboration among providers	Communication, coordination, and support among family members and service providers within and across systems
Community acceptance	Level of community acceptance and tolerance and tolerance for behavioral differences

Table 2.8: Factors Affecting the Outcomes of Community-Based Behavioral Support (adapted from Hieneman & Dunlap, 2001, p. 68)

Relevant research has also been conducted in the field of SWPBS. Kincaid, Childs, Blase, and Wallace (2007) investigated PBS team members from eight schools with high implementation and 18 schools with low implementation. Both cohorts identified staff buy-in as the most critical factor, with use of data, inconsistent implementation, reward systems, implementation issues, and time as other important factors. Similar results were found in a study that focused on PBS team members' perceptions of tertiary support (Bambara, Nonnemacher, & Kern, 2009). A study that focused on teacher perspective was also conducted. Chitiyo and Wheeler (2009) investigated teachers who had participated in SWPBS implementation, by using a questionnaire that consisted of the components that inform effective SWPBS practices.

The study reported that time, availability of resources, and family collaboration were the most challenging factors for SWPBS practices. In addition, strategies for dealing with the data and teaching expected behaviour were increasing concerns rated by the teachers.

Collectively, these studies indicate four domains that are directly related to the implementation and effectiveness of SWPBS. First, teachers and other PBS members' acceptance of the approach, including the philosophical foundations and intervention procedures, are a key factor for implementation. As the direct service providers, their attitudes and beliefs about the approach determine the extent and persistence of effort they put forth into the practices (Scott, 2007).

Secondly, professional development and available resources are essential supports. Throughout the implementation, a PBS team may encounter all kinds of issues, including needs of technical support, communication with other stakeholders, and dealing with unexpected challenges. Thus, adequate and continuous training and other means of support promote effective and sustained implementation.

Thirdly, administrative supports are an important facilitator of the implementation. Building supportive school culture, promoting active participation in the decision making, and providing essential resources (e.g., funding, time) are the most important inputs of administrative support, as expected by members of PBS teams (Bambara, et al., 2009).

Lastly, family collaboration is another enabler of the implementation. Some procedures, in particular those with intensified or individualised support, require parents' or guardians' input such as providing information for assessment and collaborating in the intervention. Without these supports, interventions cannot be accomplished and generalisation will be limited.

2.2.6 Summary

SWPBS is a decision-making framework for improving the school environment and implementing positive interventions. It is often regarded as the best practice in the

school context (Dunlap, et al., 2014; Horner et al., 2014; Lewis, et al., 2010; McIntosh, et al., 2014; Safran & Oswald, 2003). The implementation is guided by the integration of four key elements, namely, outcomes, data, practices, and systems. The most common model of implementation is the three-tiered support model. The primary support develops universal interventions to establish a proactive climate across the school settings for all students. The secondary support develops focused interventions for a group of students who do not respond well to the primary prevention. The tertiary support develops individualised interventions to students with intensive and/or chronic problem behaviours.

An increasing research interest is on understanding factors that affect the effectiveness of SWPBS. A number of barriers have been identified, including inadequate staff buy-in, intervention design and implementation issues, insufficient time and availability of other resources, and collaboration issues. Collectively, these factors suggest that the implementation and outcomes of SWPBS are associated with the PBS team's acceptance of the approach, professional development, administrative supports, and family collaboration.

The subsequent section will outline the theory of quality of life and its extending theory quality of school life. Quality of life is the central dependent variable of PBS, which is a general indicator of human well-being. However, given a school-based intervention, it is more appropriate to evaluate students' quality of life in the school context. The concept quality of school life describes students' well-being that is associated with schooling, including academic learning, peer relationship, teacher-student relationship, and self-identity as a student. The model of quality of school life adopted in the present study is used to assess the change of students' satisfaction of school life that are associated with the implementation.

2.3 Quality of school life (QSL)

2.3.1 Quality of life (QOL)

The notion "quality of life" (QOL) emerged when there were increased voices

for broadening the scope of treatment evaluation. Traditional evaluation is only concerned with the outcomes of targeted or alternative behaviour. Thus, it cannot inform whether a treatment has changed a person's life, such as improved patterns of living, development of social relationships, and inclusion of community activities (Felce & Perry, 1995). Emerson, a pioneer in the movement, concluded in his review of the current evaluation practices:

Evaluation researchers have failed to fulfill a potentially powerful feedback role by investigating issues peripheral to the agendas of policy makers and service consumers. The focus of current outcome research has largely been upon the issues of location and adaptive behavior repertoires. It is particularly important that evaluation research be reoriented to address individual's quality of life in specific environment. (1985, p. 282)

The general indicator of QOL is the degree of 'well-being' attained by an individual or a group (Felce & Perry, 1995). Along with the development of the theory of QOL, a variety of definitions have been proposed (e.g., Carr & Horner, 2007; Emerson, 1985; Felce & Perry, 1995; Landesman, 1986). Reviewing these definitions revealed two implications. First, these definitions emphasise subjective well-being (e.g., life satisfaction, happiness) more than objective well-being (e.g., material well-being). In some cases (e.g., Carr & Horner, 2007), QOL and subjective well-being are used interchangeably. Secondly, the construct covers a broad range of life domains (e.g., work, education, marriage). For instance, Felce and Perry (1995) constructed QOL as "physical, material, social, and emotional wellbeing together with the extent of personal development and purposeful activity" (p.60). Carr and Horner (2007) identified six domains for QOL, namely, "material well-being, health and safety, social well-being, emotional well-being, leisure and recreation, and autonomy" (p.4). Collectively, the research suggests that QOL is a broad concept that is associated with all kinds of events in an individual's life. Secondly, although QOL acknowledges the importance of physical well-being, it emphasises emotional well-being and social engagement.

2.3.2 Quality of school life (QSL)

2.3.2.1 Emergence

Although the innovation of the concept QOL brought a new perspective for treatment evaluation, the utilisation of the construct to guide evaluative research in school-based interventions was questioned (Epstein & McPartland, 1976; Tangen, 2009). The major critique is that QOL is a universal concept that covers the full complexity of an individual's life. Thus, it is not explicit enough to guide research and practices in a particular domain (e.g., schooling) or period of lifespan (e.g., childhood). Tangen (2009) argued that school life is not “real” adult life because school is a place for preparing for adult life. Thus, QOL lacks definitive characteristics and insider perspectives of this domain. Epstein and McPartland (1976) pointed out that QOL frameworks were inappropriate for informing children's lives because they were constructed of satisfaction, comprehension, and engagement of adult lives.

To conceptualise quality of life in the school context, it is essential to recognise school-related factors, educational events and school climate (Karatzias, Power, & Swanson, 2001; Pratzner, 1984). In addition, a number of researchers (e.g., Epstein & McPartland, 1976; Tangen, 2009; Williams & Batten, 1981) argued that the construct should be capable of describing students' experiences and well-being. Research has demonstrated that students' subjective well-being in schooling is a predictor of students' self-esteem, academic attainments, positive peer relationships (Chang & Wong, 2015; Karatzias, Power, Flemming, Lennan, & Swanson, 2002; Marjoribanks, 2006; Xu & Zhao, 2012).

In one of the initial proposals of the concept of quality of school life (QSL), Epstein and McPartland (1976) argued that a student's satisfaction with school life is affected by three dimensions, namely, “student reactions to school life in general, to school work and to teachers” (p.16). Accordingly, the researchers proposed a conceptual model with three subscales. A 27-item scale was also developed and validated. The model became a milestone for studying QSL because it identified formal

and informal aspects of schooling that interact with students. The strength of this model is that it was developed exclusively for students' life circumstance, including their general reactions to school life, namely, The Satisfaction subscale, and specific response to aspects of schooling, namely, Commitment to Classwork, and Reactions to Teachers.

A major concern about this construct, however, is that the three dimensions do not represent the entirety of school life (Williams & Batten, 1981). For example, the relationships between a student and peers are not measured. This weakness was noted by the researchers in discussion of the limitations: "But it should be clear that there are several dimensions to the concept of quality of school life. In this paper we note three." (Epstein & McPartland, 1976, p. 26). Research has demonstrated that QSL is affected by varied factors such as quality of teaching, social support, peer relationship, academic engagement, sense of accomplishment, and students' self-image (DeSantis King, Huebner, Suldo, & Valois, 2006; Liu & Tian, 2006; Rowe, 2003; Thien & Razak, 2013). In particular, research of Chinese students' QSL indicates that teacher-student relationship, peer relationship, diversity of school activities, and students' cognition of academic learning are critical factors (Yu & Wang, 2007). Xu and Zhao (2012) investigated 2,248 Chinese primary school students' QSL and proposed that QSL should contain students' satisfaction with four aspects, namely, physical environment (e.g., school safety, equipment), academic learning and achievement, social relationships, and equity and inclusion.

2.3.3 The model for the study

The present study adopted the construct proposed by Williams and Batten (1981). The construct was initially developed for a statewide research project funded by the Education Research and Development Committee of Australia. The project aimed to have a direct and intensive understanding of Australian students' perceptions of school life (Batten & Girling-Butcher, 1981). In this project, a rating scale based on the model was developed and validated. Subsequently, the model and the scale were adopted by

other research projects for investigating primary school (e.g., Ainley, Goldman, & Reed, 1990) and secondary school (e.g., Ainley, Miller, & Reed, 1986) students' QSL. They were also adopted by a number of government-sponsored studies for examining student QSL in Hong Kong (e.g., Pang, 1999). More recently, they were used by a study for investigating university students' school life in mainland China (e.g., Hu, 2010).

The model consists of two global and five specific domains (see Table 2.9). The global domains, namely, general and negative affects, were developed on the basis of the quality of life model of Burt and colleagues (1979; 1978). The specific domains, namely, status, identity, teachers, opportunity, and achievement, were derived from the schooling theory of Mitchell and Spady (1978).

Table 2.9: General and Specific Domains of QSL (adapted from Williams & Batten, 1981)

Domain	Description	Sample item
General affect	Overall positive feelings about life in school	My school is a place where I really like to go.
Negative affect	Overall negative feelings about life in school	My school is a place where I get upset.
Status	A student's perception of prestige in him or herself through interacting with others	My school is a place where people look up to me.
Identity	A student's feeling of self-awareness, or the notion of 'Who am I?'	My school is a place where I learn a lot about myself.
Teachers	The adequacy of teacher-student relationship	My school is a place where teachers treat me fairly in class.
Opportunity	A student's belief in the relevant schooling	My school is a place where I know I can do well enough to be successful.
Achievement	A student's sense of being successful in school work	My school is a place where I am successful as a student.

Given that school prepares children in their adult life, Williams and Battern (1981) linked varied aspects of school life to social expectations in this model. The

foundation is Mitchell and Spady's (1978) model of schooling that defines four organisational structures (see Table 2.10) that function to realise four social expectations respectively. Building on Mitchell and Spady's model of schooling, Williams and Battern (1981) defined four domains of student experiences (see Table 2.10) that are aligned with these school structures. The researchers posited these experiences as the 'sine qua non' for meeting social expectations and operating school structures.

Williams and Battern's model of QSL portrays a more complete and clearer picture of student school life than Epstein and McPartland's model. The global domains measure the general affect of a student that may be caused by any experience at school, which are not indicated in any of the specific domains. Each specific domain has its own foci. The collection of all the specific domains makes up the entirety of school life (Ainley & Bourke, 1992; Ainley, et al., 1986).

Moreover, Pang, who is the leading researcher of Chinese students' QSL, argues that this model was more appropriate for Chinese culture because it connected students' perceptions of self-ability and self-responsibility for schooling with social values. Chinese educational law regulates Chinese schools to educate students to become "constructors and successors with all round development of morality, intelligence and physique for the socialist cause" (Ministry of Education of People's Republic of China, 1995, art. 5). Chinese education emphasises harmony between social needs and individual development. The QSL for Chinese students should reflect both individual value and collectivistic cultures (Sun, 2013). Williams and Battern's model has been effectively adapted to measure Chinese students who are studying primary, secondary, or tertiary education (Chen, Qian, & Lv, 2012; Kong, 2008; Liu & Tian, 2006; Xu & Zhao, 2012).

Table 2.10: Student Experiences Corresponding to the Four Social Expectations and School Structures (adapted from Williams & Batten, 1981, p. 10)

Social expectations	School structures	Student experiences
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Technical competency	↔	Certification (performance standards)	↔	Opportunity (security, adequacy)
Personal development	↔	Instruction (learning, exploration)	↔	Adventure (adequacy, intimacy)
Social integration	↔	Socialization (social participation)	↔	Identity (intimacy, worth)
Social responsibility	↔	Supervision (social norms and values)	↔	Status (worth, security)

2.3.4 PBS and QOL

The central dependent variable of PBS is improvement of an individual's QOL through change of lifestyle (Carr & Horner, 2007). Early studies in the field of PBS embraced an indirect way to measure the outcome of lifestyle change (Russell, Reece, & Tara, 1997; Sugai, et al., 2000b). Most of the studies used school discipline records (e.g., ODR) and considered the degree of decrease as the indicator of lifestyle change. The underpinning rationale is that if a student has made improvement as shown by the records, this must be the result of positive engagement in the school context. However, others (e.g., Scott & Barrett, 2004) argued that the outcome of decreases in these records is not necessarily caused by improved social engagement. For instance, a student who is less poorly behaving is also demotivated to participate in school activities. This student may have realised that the more engagement in school activities, the more chances to be recorded. In such a case, it is unreasonable to say that the student has improved QOL.

An emerging methodology for evaluation is measuring QOL variables directly. For instance, Cheney, Stage, Lynass, Hawken, Waugh and Mielenz (2009) measured the variable "student-teacher relationship" by using the *Student-Coach Relationship Scale* at four stages throughout the two-year SWPBS practice. As discussed in section 2.3.2, teacher-student relationship is an important determinant of students' QSL. In another study, Dunlap and colleagues (2010a) used a QOL scale that consisted of six

dimensions, namely, material well-being, health and safety, social well-being, emotional/affective well-being, leisure and recreation, and personal well-being, for evaluating the effect of a two-year PBS practices associated with multiple settings (e.g., home, school, and community) on participants who ranged in age from three to 39 years old. The results showed that the majority of participants had improvements in all the domains of QOL along with the implementation. Similar methodology and findings are available in a number of other studies (e.g., Binnendyk & Lucyshyn, 2009; Clarke, Worcester, Dunlap, Murray, & Bradley-Klug, 2002; Kincaid, Knoster, Harrower, Shannon, & Bustamante, 2002). To date, most of the studies that measured QOL are associated with family-based interventions (for a review, see McLaughlin, Denney, Snyder, & Welsh, 2011). Very few studies have utilised a QSL scale to measure students' outcome in a SWPBS implementation.

A research synthesis (O'Dell, et al., 2011) that reviewed PBS studies published in the JPBI during the first 10 years (from 1999 to 2008) suggested that the most common QOL variables measured were social relationships and personal satisfaction, with other variables including community integration, self-determination, and employment. Despite the achievements, the synthesis as well as other research reviews (Hagermoser Sanetti, Dobey, & Gritter, 2012; Turnbull & Turnbull, 2000) called for an expansion on measuring a rich style of QOL. Carr and Horner (2007) pointed out that enrichment did not require every study to draw on the comprehensive QOL. Further, the researchers suggested that future studies might incorporate the specific QOL that occurs in a particular context. Given the present research topic, it is worthwhile to measure the effect of SWPBS on students' QSL.

2.3.5 Summary

A new lens for evaluating behavioural treatment is through the idea of quality of life (QOL). QOL is a universal concept that refers to the objective and subjective well-being of a person. Studies have posited multiple-dimensional constructs, most of which emphasised the subjective aspects (e.g., emotion, self-determination) more than

the material (e.g., possessions) and physical aspects (e.g., fitness).

Nonetheless, the concept QOL may be too general to indicate a person's well-being in a particular context or period. To study a child's quality of life in the school context, the concept of quality of school life (QSL) is recommended. A major reason is that school is a place for preparing for adult life, and school life is not identical to adult life. The present study adopted the construct of QSL developed by Williams and Batten (1981). The construct consists of two global and four specific domains. The global domains measure the general positive and negative feelings about school life, whereas, the specific domains measure a student's sense about the prestige, identity, teacher-student relationship, belief in schooling, and achievement. The construct and scale have been adopted by a number of research projects in Australia, Hong Kong and mainland China.

QOL is the central dependent variable of PBS. Early studies did not directly measure the construct but drew on outcomes of school discipline system. This is unconvincing because the change of discipline record does not necessarily suggest a better school life. The dominant methodology then turned to measure variables of QOL. A number of research reviews indicated that social relationships and personal satisfaction were the most common variables measured by PBS researchers. Future research on PBS needs to inform a rich style of QOL, including associating QOL with specific contexts.

The subsequent section will outline the theory of teachers' sense of teaching efficacy and review the literature that evaluates teachers' sense of teaching efficacy in SWPBS implementation. Teachers' sense of teaching efficacy is an aspect of teachers' well-being and also a dependent variable of SWPBS. Teachers play a critical role in guiding students' behaviour through their direct (e.g., praise) and indirect (e.g., expectation) responses. A sound class-based practice should benefit both teachers and students. From the perspective of teaching efficacy, only if the teachers feel the practice is efficacious for them to use, will they elicit sufficient effort to regulate their behaviour

and adjust the environment for sustained implementation. Thus, teachers' sense of teaching efficacy is considered an important indicator of the social validity of SWPBS (Ross & Horner, 2007).

2.4 Teachers' sense of teaching efficacy

2.4.1 Overview

The earliest citation of the concept "teacher sense of efficacy" in the Educational Resources Information Center (ERIC), as noted by Woolfolk and Hoy (1990), appeared in the study conducted by Barfield and Burlingame (1974) for investigating the relationships between various factors (including teacher sense of efficacy) and student control ideology. In this preliminary study, "efficacy" was defined as "a personality trait that enables one to deal effectively with the world" (p.10). The study concluded that teachers with a low sense of efficacy were more likely to control students than those with normal or high sense of efficacy.

Initial studies that measured the concept included two Rand studies. The first study (Armor et al., 1976) was developed to identify the factors that impact students' reading achievements. The second study (Berman, McLaughlin, Bass, Pauly, & Zellman, 1977) was developed to investigate the factors that affect effectiveness of educational projects implemented in the school context. In both studies, teachers' sense of teaching efficacy was measured by their responses to two 5-point Likert questions:

- a. When it comes right down to it, a teacher really can't do much (because) most of a student's motivation and performance depends on his or her home environment.
- b. If I really try hard, I can get through to even the most difficult or unmotivated students. (Armor, et al., 1976, p. 23; Berman, et al., 1977, pp. 136-137)

Both studies found that the beliefs teachers had about their own teaching capacity affected educational outcomes. In the first study, the higher level of teaching efficacy perceived by teachers, the better reading achievement was found. In the second

study, the higher level of teacher efficacy the teachers held, the longer implementation of the educational projects they maintained.

These initial studies seemed to view teachers' sense of teaching efficacy as a general concept. In Barfield and Burlingame's study, the concept was defined as the general sense of efficacy and measured by a five-item scale "used to measure a person's sense of powerlessness to change their situation" (1974, p. 8). In the Rand studies, although the concept was connected to Rotter's social learning theory, it was also simply defined and measured.

The conception was then guided by one of the components within Bandura's social cognitive theory, namely, 'self-efficacy'. Bandura (1986) argued that human functioning was an outcome of "triadic reciprocal causation" among personal factors, environment, and behaviour. "In this transactional view of self and society, internal personal factors in the form of cognitive, affective, and biological events, behavior, and environmental events all operate as interacting determinants that influence one another bidirectionally" (Bandura, 2000, p. 329). Social cognitive theory explains how humans develop and respond to the environment through these interactions (Bandura, 1986; Bandura, 2000). This theory acknowledges the influence of social and environmental factors on development of human behaviour. More importantly, it posits that the self contributes extensively to behaviour. The development of behaviour is mediated by self-influence, including self-efficacy belief and self-regulation.

Social cognitive theorists emphasise that humans exercise forethought, a function that enables people to set goals, foresee outcomes, and avoid failure, before action (Derya & Rasit Ö, 2014; Pajares, 1996; Putwain & Symes, 2014; Schunk, Pintrich, & Meece, 2008). Self-efficacy beliefs mediate forethought function through inferential judgments of outcome expectation and competence of practice (Bandura, 1989). In general, self-efficacy is "the exercise of human agency through people's beliefs in their capabilities to produce desired effects by their actions" (Bandura, 1997, p. vii). To form the sense, an individual will go through two psychological processes,

namely, outcome expectancy and efficacy expectancy. Outcome expectancy is the judgment of whether certain behaviour results in an anticipated outcome. Efficacy expectancy is the judgment of whether an individual can successfully exert the behaviour that will result in the anticipated outcome. Further, Bandura (1977, 1978) explained that efficacy expectancy was distinct from outcome expectancy. A person can assume that a particular behaviour produces a particular outcome, but that person may not consider the self to be capable of performing the behaviour. Thus, efficacy expectancy decides the motivation and persistency for behaviour.

The emergence of self-efficacy advocated the central role of self-referent process in the formation of action (Bandura, 1978), which was overlooked in the psychological theories for understanding human behaviour before the 1970'. The prevailing theories at that time was influenced by the behaviourism, which casted greatly on the linkage between actions and outcome expectations. Bandura, however, asserted that a person's cognitive system altered the status of his behaviour responding to the outcome expectations (e.g., Bandura, 1997). Moreover, self-efficacy is domain-specific and different from a general sense of self-concept or self-esteem (Schunk, et al., 2008). Thus, to understand a teacher's self-efficacy in teaching, it is important to measure the perceived efficacy associated with a specific context or activities.

Influenced by the Rand studies and Bandura's model of self-efficacy, a number of researchers expanded the concept of teachers' sense of teaching efficacy from a global construct to a multidimensional construct. One of the widely accepted models is proposed by Ashton and Webb (1982). Like Bandura's model, Ashton and Webb identified two dimensions for framing the concept, namely, general teaching efficacy and personal teaching efficacy (1982; 1986). General teaching efficacy corresponds to outcome expectancy in Bandura's model, which refers to a teacher's expectations about the consequences of teaching in general. The researchers proposed that the dimension could be measured by the first question in the Rand studies. Personal teaching efficacy

corresponds to efficacy expectancy in Bandura's model, which refers to a teacher's judgment of personal ability in exertion of particular behaviour for expected outcomes (e.g., student achievement). This variable can be measured by the second question in the Rand studies.

Building on the previous research, Tschannen-Moran, Woolfolk-Hoy, and Hoy (1998) proposed an integrated model of teaching efficacy and called for a new area of research. This model defines teaching efficacy in two dimensions, namely, analysis of teaching task and assessment of personal teaching competence. The analysis of teaching task is associated with the concept general teaching efficacy (see above), but also measures environmental factors (e.g., school culture, leadership) that positively influence teachers' judgment. The assessment of personal teaching competence is associated with the concept personal teaching efficacy (see above), but further relates to two situations, namely, teachers' perceptions of current functioning and prediction of future capability. In addition, this model emphasises the cyclical nature of teaching efficacy (Tschannen-Moran, et al., 1998). The inferential judgment of teaching efficacy is influenced by cognitive processes that interpret the efficacy information obtained from varied sources. The exercise of current teaching efficacy mechanism also creates a new mastery experience, which becomes a new source of efficacy information for ongoing shaping of teaching efficacy belief.

Influenced by the two-dimensional model of teaching efficacy, a number of scales were developed for measuring the construct. One of the initial scales was developed by Gibson and Dembo (1984). It is a 30-item Likert scale that consists of two dimensions that are aligned with Ashton and Webb's model. The first dimension, referred to as "a teacher's sense of personal teaching efficacy" (p.573), assesses the extent of a teacher's skills and abilities that can affect students' performance. The second dimension, referred to as "a teacher's sense of teaching efficacy" (p.573), assesses the external factors that limit a teacher's ability for changing students' performance.

Using Gibson and Dembo's scale and two original questions of the Rand studies, Woolfolk and Hoy (1990) developed a scale. In addition, these researchers further divided the dimension "personal teaching efficacy" into two sub-dimensions, namely, teachers' sense of personal responsibility for positive student outcomes and responsibility for negative outcomes. Building from the previous studies, in particular, the model proposed by Tschannen-Moran and colleagues, Tschannen-Moran and Woolfolk-Hoy (2001) proposed a new scale that measures personal competence and an analysis of the task. Chinese researchers Yu, Xin, and Shen (1995) adopted Ashton's model of teacher efficacy and developed a Chinese version of scale based on Gibson and Dembo's scale. This scale has been widely used to measure Chinese teachers' teaching efficacy for more than two decades (Wang, 2008; Zhao, Zhang, Geng, & Shen, 2005).

2.4.2 SWPBS and teachers' sense of teaching efficacy

As increasing efforts are being made in the implementation and fidelity of PBS, the relationship between the approach and teachers' sense of teaching efficacy becomes an emerging research interest. Morin and Battalio (2004) reasoned that if teachers implemented SWPBS and received positive outcomes, their personal teaching efficacy would increase. The causal relationship was firstly examined by Ross and Horner (2007). In their study, 20 teachers from four middle schools who had experienced SWPBS completed Gibson and Dembo's scale. The study reported that the teachers who had experienced SWPBS with high implementation had a significantly higher sense of teaching efficacy than those who had experienced it with low implementation. Similar findings were yielded from the follow up study of primary school teachers conducted by Ross, Romer, and Horner (2011). Recently, Reinke, Herman, and Stormont (2013) used direct observation and Tschannen-Moran and Woolfolk-Hoy's scale of teaching efficacy to investigate the use of classroom behavioural management strategies from 33 primary schools that implemented SWPBS with high fidelity. This study found that the classroom teachers' sense of teaching efficacy was positively

related with all the positive strategies, in particular, the use of strategy general praise (any verbal statement or gesture that indicates approval). In turn, these teachers' efficacy beliefs were negatively related with the strategies that involved reprimand.

Theoretically, SWPBS and teachers' sense of teaching efficacy can be mutually supportive. For the first reason, if teachers view SWPBS as an effective approach (teaching efficacy) and feel themselves efficacious to implement it (personal teaching efficacy), they may be confident and motivated to continue the implementation. In this sense, their teaching efficacy will be maintained or increased. At the same time, the implementation is likely to be sustained. For the second reason, as suggested by Gibson and Dembo (1984), teachers with a high sense of teacher efficacy have a more positive teaching pattern than those with low sense of teacher efficacy, in terms of providing proactive feedback and persistence. Coincidentally, PBS is an approach that requires teachers' positive responses to students. Thus, it is reasonable to assume that the sustained use of SWPBS will increase teachers' sense of teaching efficacy. In turn, the teachers are likely to continue the implementation.

Despite the above-mentioned studies, empirical research on the relationships between SWPBS and teachers' sense of teaching efficacy is still limited and simplistic. More and diverse studies are expected. For instance, exploration on how SWPBS implementation promotes the form of positive sense of teaching efficacy may help researchers and practitioners understand specific factors that affect the relationship. It also will be interesting to find out whether SWPBS implementation improves teaching efficacy of teachers who are in other cultures than the Western culture. In particular, given that Chinese teachers often consider their main responsibility is academic achievement rather than student behaviour (Ho, 2004), it is interesting to explore development of the efficacy beliefs of the Chinese teachers who have implemented SWPBS implementation.

2.4.3 Summary

Teachers' sense of teaching efficacy refers to teachers' beliefs in their own

abilities to influence students' positive performances (Ashton, 1984; Gibson & Dembo, 1984). An influential theoretical model is proposed by Ashton and Webb (1982), which built on two Rand studies and Bandura's self-efficacy theory. The model comprises two dimensions, namely, teaching efficacy and personal teaching efficacy. Accordingly, Gibson and Dembo (1984) developed a two-dimension scale to measure the concept. Adopting Ashton and Webb's model and using Gibson and Dembo's scale, a number of new scales have been developed and expanding the research body.

An increasing research interest in the SWPBS field is examining the relationship between SWPBS implementation and teachers' sense of teaching efficacy. It is argued that SWPBS and teaching efficacy can benefit each other. The more effective and sustained SWPBS implementation the teachers have experienced, the better sense of teaching efficacy they have, and vice versa. The hypotheses were supported by a number of empirical studies. More and diversified research of the topic is anticipated for informing the effectiveness of SWPBS and benefiting teacher well-being.

2.5 Summary of the chapter

PBS is a behavioural approach for improving quality of life and reducing problem behaviours by reconstructing the environment and/or teaching socially appropriate behaviours. It is rooted in the parent discipline ABA and also influenced by other disciplines throughout its evolution. PBS shares characteristics with ABA in the basic methodology and strategies of behavioural change. It is distinct from ABA in its primary goal, comprehensive support, system change, and internal validity. It is an interdisciplinary and pragmatic approach that seeks to improve a person's quality of life through sustained improvement of this person's behaviour and living environment.

SWPBS is the application of PBS in school context. It uses system change and decision making teams to establish a proactive school climate and implement evidence-based interventions. All the students in the environment can make academic and social achievements. SWPBS is preventative, school-wide, systemic, team-based and evidence-based, and aims to have effective, durable and meaningful outcomes.

CWPBS is a variation of SWPBS, which applies the approach in a classroom system. It can be implemented with or without the broad SWPBS in place.

The implementation of SWPBS relies on integration of measurable and achievable outcomes, data for decision-making, evidenced-based interventions, and efficient systems. The three-tiered preventative support is the dominant model of SWPBS implementation. It identifies students with differentiated instructional needs, and intervenes with differentiated procedures. The primary support is a universal support for all students and staff across a broad range of settings. The secondary support is a group-focused intervention for students who are not responsive to the primary support and need more intensive interventions. The tertiary support is individualised intervention for students who are not responsive to the secondary support and need the most intensive and specialised interventions. The three tiers form a continuum of support and share the expectation and value of the school.

QOL is the central dependent variable of PBS, which indicates a person's well being. The uniqueness of schooling endorses the construct of QSL for understanding a student's satisfaction with his or her school life. In order to evaluate the effects of SWPBS implementation, it is important to understand how the students' QSL is affected by the implementation. This study adopted Williams and Batten's model of QSL that consisted of two global domains (general affect and negative affect) and five specific domains (status, identity, teachers, opportunity, and achievement). This model has a good description of students' school life, and has been widely used in western and eastern cultures. Moreover, it connects individual students' experiences with social expectations, which is considered important in contemporary Chinese educational philosophy.

An important dependent variable of SWPBS is teachers' well being. PBS practitioners and researchers endorse that a sound school-based practice should benefit teachers' happiness and competence. These outcomes, in turn, predict social validity of the implementation. Teachers' sense of teaching efficacy, an aspect of teachers' well

being, is an important dependent variable of SWPBS. In turn, the teachers are likely to maintain the implementation. It is suggested that SWPBS with high implementation enhances teachers' sense of teaching efficacy. Building on Bandura's theory of self-efficacy, the construct of teachers' sense of teaching efficacy adopted by the present study consists of the general teaching efficacy and personal teaching efficacy. A number of widely used rating scales, including a Chinese cultural validated rating that has been commonly used for two decades, are developed based on the model.

The frameworks and models presented and reviewed in this chapter guided the design of the present study. In the subsequent chapter, the research design and methods, including a detailed description of the site and participants, and the preparation for the study will be outlined.

CHAPTER THREE METHOD

3.1 Introduction

This chapter maps the methodological framework for the present study. It begins by justifying the rationale for selecting case study design and demonstrating how the logic of case study research ran through the study. It gives the rationale for adopting the embedded single case design and demonstrates the interconnections between the research interests and the design. It also provides a contextual background of the school and a description of the participants. The chapter then focuses on the methodological elements of the study, including explanation of the sources of data, methods and general procedures for data analysis, strategies for enhancing the quality of the study, and the key role played by the researcher. The remainder of the chapter provides information about the research context, including accessing the participating school and description about the school setting.

3.2 Rationale for selecting case study research approach

The motivation for undertaking the present study generated from an interest to explore the outcomes of Chinese students and teachers that are associated with the practice of SWPBS. SWPBS has been widely implemented in Western societies (see Chapter Two: Literature Review) but has seldom been used in school settings in China. The scarcity of empirical research on this topic in this context warrants an evaluative study that is undertaken in a real life setting. A case study approach is appropriate for such evaluative research.

3.2.1 Distinction of case study for program evaluation

The value of case study research in educational evaluation has been well recognised for a few decades. The rise of the approach in the field dates back to the 1970s when the shortcomings of quantitative approaches such as experiments, tests and surveys were raised (Cronbach, 1963; Hamilton, 1980; Stake, 1967). Stake (1967, 1975) argues that a good evaluation is not just a showcase of accomplishments and

shortcomings, but reflects the stakeholders' values and goals as well. Assurance of quality builds on good collaboration of summative standards and formative (on-going) evidence.

The case study approach has a distinctive place in program evaluation. It allows for understanding a program in its real life context. Case study researchers are interested in the “natural” facet of a program by gathering data with and among participants or stakeholders, keeping track of records and profiles to gain insights to research questions. Stake (1995) describes case study as work that needs to be “progressively focused” (p. 133). This means that researchers need to prepare for changes that occur as the study moves on. Unlike the experimental approach, the case study approach is suitable for natural and dynamic contexts (Creswell, 2012; Crowe et al., 2011).

The case study approach allows for understanding the multiple facets of a program. An evaluation of a school-based program should reflect the fullness of the program, including multiple outcomes, perspectives and issues raised from varied situations and time phases (Patton, 1980; Stake, 1975). Unravelling the fullness of the program requires connecting the evaluator to day-to-day events (Parlett & Hamilton, 1972), wherein the participants' views and behaviours are collected, activities and outcomes are recorded, and documents are reviewed as the evaluation moves on. In addition, interpretation may be commenced as the data are still being collected, for the purpose of understanding the program progressively.

3.2.2 The nature of case study

What constitutes a case in case study design? A widely accepted definition (e.g., referred by Creswell, 2012; Merriam, 1988; Stake, 1995; Swanborn, 2010) is proposed by Smith (1978) who defined it as “the boundaries of the system” (p. 341). Stake (1995) explained that the system could be a person, a group, a program or an institution, and should be an object rather than a process. The definition highlights the specific phenomenon and research interests (e.g., a concern, a hypothesis) that are associated with the context. Thus, the logic of case study is to “raise questions about the

boundaries and defining characteristics of a case” (Neuman, 2010, p. 41).

Taking the present study as an example, the bounded system is the implementation of CWPBS in the participating class. Within the case, how effectively the program (phenomenon) had improved student behaviour was one of the main interests. To explain this causal relationship, the researcher acquired the explicit information of student problem behaviours and details of behavioural change across the implementation. Finally, an explanation was given to demonstrate the causal relationship in the particular setting.

Yin’s (2009) two-fold definition of the case study gives a further elucidation of the approach. The definition is both theoretical and practical. The first part of the definition is stated as:

A case study is an empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident. (p. 18)

Thus, case study is a method that allows for an investigation of a research interest in a naturalistic form. All variables and details within the case may be research interests in order to understand a phenomenon. For example, in order to evaluate the effectiveness of a classroom behavioural intervention, all sources of evidence, including observation, behavioural profile, school clinical report, teacher report, and student self-assessment that are related to students’ behaviour, may be reviewed. Stake (1995) argued that the motivation for case study was when the researcher had a special interest in a case, so he or she explored detail of the interactions with the context. The second part of the definition is:

The case study inquiry copes with the technically distinctive situation in which there will be many more variables of interest than data points, and as one result relies on multiple sources of evidence, with data needing to converge in a triangulation fashion, and as another result benefits from the prior development of theoretical propositions to guide data collection and analysis. (p. 18)

This highlights that all kinds of evidence may be useful for exploring the research interest(s) in a case study. Thus, it draws attention to the need to collect ‘multiple sources of evidence’, and then follow the process of ‘triangulation’ to validate the evidence. The processes of data collection and analysis are underpinned by the theoretical framework, which allows generalisation of findings from the case study to the broader context or phenomenon. Here, “multiple sources of evidence”, “triangulation” and analytical generalisation characterise case study research.

3.2.3 Distinctive features of the present study

The present study featured naturalistic and in-depth data collection. It may be classified as naturalistic because the study was conducted in a real classroom setting. Further, the interventions were developed and implemented by the teachers of this class. In other words, the practice of CWPBS was integrated into the classroom management, and became a part of the teacher’s daily routine.

The study may be classified as in-depth because it was developed to be congruent with the macrosystem (Bronfenbrenner, 1979) of the class. Although the present study investigated the implementation of CWPBS in the social context of China, it was not a duplication of any studies undertaken in Western societies. Rather, at all stages from the design to the reporting of the findings, the study was underpinned by the values and expectations of Chinese education.

SWPBS practices in western countries emphasise whole school practice and campus safety (Horner, et al., 2004; McIntosh, et al., 2014). Western schools have a long history of concerns about student aggression and school violence (Cornell & Mayer, 2010). Thus, a key responsibility of western school education is the establishment of an orderly and pro-active school climate to enable students’ academic and social success. In contrast, Chinese schools regard academic achievement as the primary goal of school events (Stevenson & Lee, 1996). An intervention may lose its value if it does not satisfy the need of academic success. This study embraced such an orientation by developing and implementing the interventions primarily for enhancing

learning outcomes. Further, it was a research interest of this study to investigate the academic performance that was associated with the practice. Accordingly, school academic measures (e.g., achievement test) were collected for evaluating the outcome of the implementation.

Secondly, the implementation was a classroom-based practice, and the investigation considered the class as a holistic case. In Chinese school education, a classroom is the basic context for teaching and learning (Liu & Barnhart, 1999). The homeroom teacher acts as the executive of the class, and often regarded as the ‘parent’ of the students in the class (Shi & Leuwerke, 2010). An effective classroom is a unity of harmony established by the homeroom teacher, subject teachers, and students. It entails a high sense of cohesion and pride in the class (Liu & Barnhart, 1999). Thus, the students’ and teachers’ outcomes were two foci of the current investigation. This study sought to find out how the two key stakeholders in the classroom context respond to the practice. In addition, the practice was led by the homeroom teacher and implemented by both the homeroom and subject teachers. Such a pattern resembles the contemporary classroom management pattern in China (Liu & Barnhart, 1999; Shi & Leuwerke, 2010).

Thirdly, negative strategies (including punishment) was not forbidden in this practice, though it was not a recommended strategy in PBS (Simonsen et al., 2014). Punishments are not always considered unacceptable in Chinese classrooms, especially when they improve academic achievement. To some extent, Chinese teachers believe that negative strategies increase students’ self-awareness about their problem behaviour and help them self-regulate their behaviour (Zhang, 2008). Given that punishment is still common in Chinese classrooms (Meng & Liu, 2010), this practice accepted the use of negative strategies for controlling problem behaviour under the appropriate procedure (see also Appendix A).

Additionally, the study was in-depth through the inclusion of multiple participants, phases of the practice and sources of data. To be specific, firstly, the study

examined different interests (e.g., students' behaviour, fidelity of treatment) entailed in the practice of class-wide PBS. Secondly, the study investigated feedback from the students, teachers, and parents who were the significant stakeholders. Thirdly, the study looked at students' and teachers' outcomes throughout the implementation. Finally, in seeking to capture evidence from the abovementioned points, multiple sources of data (e.g., observation, interview, survey) were collected.

3.2.4 The case study logic in the present study

The present study embraced Yin's two-fold definition. Firstly, this study was an empirical inquiry that evaluated the implementation of CWPBS in a real-life context. As a part of the evaluative process, the practice was developed and implemented by the participating teachers. Secondly, the study sought to have an in-depth understanding of the outcomes of CWPBS. In this sense, the data accounted for multiple participants and stages. The rich data allowed for triangulation to validate the study (Yin, 2009). Finally, the study sought to gain insight into the research questions, which extended to the broader application of SWPBS. In this sense, the design of study was based on a careful review of the theoretical framework and literature, research questions and the context.

3.3 Application of embedded single-case study design

3.3.1 Types of case study designs

Yin (2009) classified case study designs by a 2×2 matrix (see Figure 3.1). The basic elements of a case study design are 'case' and 'context'. The researcher emphasised that 'case' must always be considered in relation to its context in every type of design. An advantage of the matrix is that it provides a conceptual map about establishing a case study design.

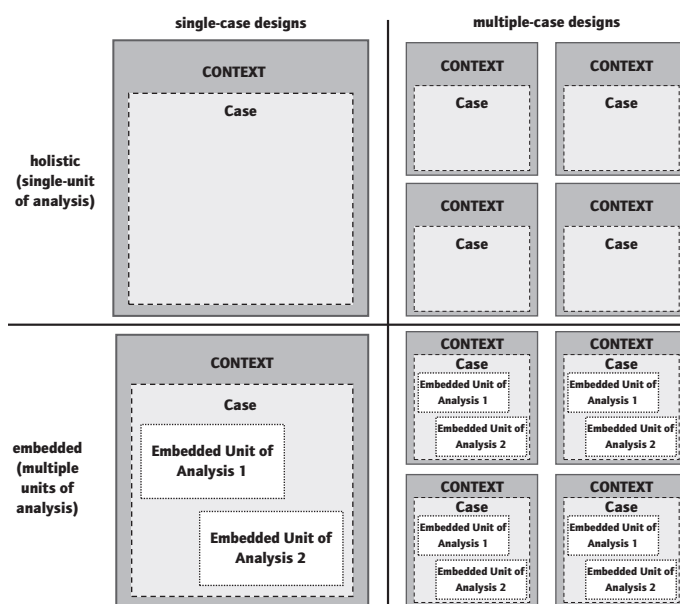


Figure 3.1: Basic Types of Designs for Case Studies (Yin, 2009, p. 46)

The design logic, as suggested by Yin (2009), should start from the decision of single or multiple cases type, because the design situations of the two types are different. The single case design is used for critical, unique, typical, revelatory or longitudinal purposes. In multiple case design, a number of cases are used jointly for comparative purposes. In other cases, each individual case represents a circumstance or dimension of a phenomenon, all of which make up a general understanding of the phenomenon. An individual case in multiple-case design is insufficient to provide evidence for the inquiry, but a combination of all will do (Yin, 2009).

When a design situation is established, the next step is to decide the design of a holistic case or an embedded case. The former is most suitable when the research interest is on the global nature of a program, or the program itself does not have logical units. By contrast, the embedded case design is most useful when a program involves a number of projects, stages, groups or other logical units that are worth investigating. Collecting diverse sources of data, including quantitative and qualitative data (Yin, 2009), is a common strategy used in embedded case design. Yin (2009) emphasised that the embedded case design was more likely to result in multi-faceted explanations of the research question than is possible in the holistic case design.

3.3.2 Rationale for an embedded single-case study

Following Yin's design logic, the present study was designed as a single case. The rationale for the design is associated with the research purpose, which is to explore the outcomes of CWPBS implemented in a particular classroom. This class, which is regarded as an individual case, is a typical class that needs the application of CWPBS. The implementation was organised under the framework of the SWPBS approach. Finally, the outcomes were measured to understand the implementation as it occurred in the class.

The rationale for designing embedded units of analysis is associated with the operational framework of SWPBS (See Chapter Two). For a brief review here, the most common implementation model of SWPBS is the three-tier preventative support. In this model, the first tier, second tier, and tertiary tier of supports focus on all the students, a group of students with problem behaviours, and individual students with more severe problem behaviours, respectively. The framework is especially suitable for an embedded case design. Each tier of support targets a different group of students within the class, and the combination of all tiers makes up the entire practice. If the researcher only attended to the whole class (holistic case), then how the group and the individual students (both are embedded units) have progressed will be unclear.

3.3.3 The structure of the present case design

In seeking to understand the outcomes of the CWPBS practice in depth, the present case study was developed in the single-case design with two embedded units of analysis (See Figure 3.2). The global case refers to the entire practice implemented in the class. The unit of analysis 1 and 2 refers to the practice of the secondary tier and the tertiary tier, respectively. Each unit had its own research interests, objects and methods of data collection. These are different but related to the counterparts in the global case. At the same time, the research interests and objects of each unit were still a part of the global interests and objects. Thus, the research findings from each unit were added to the global research findings.

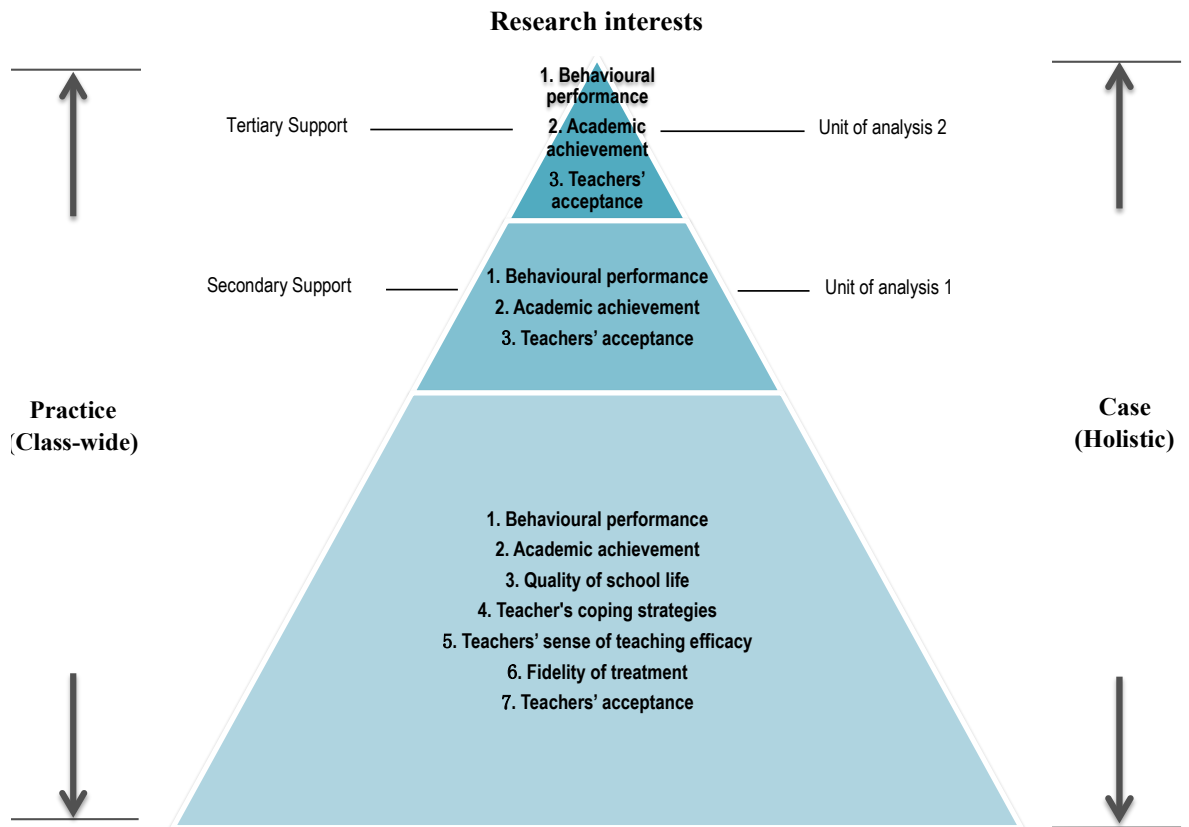


Figure 3.2: The Structure of the Case Design and Its Relationships with the Practice and Research Interests

The research interests that were associated with the holistic case were limited to seven areas: (1) behavioural performance of the class, (2) academic achievement of the class, (3) quality of school life of the class, (4) teachers' management strategies, (5) teachers' teaching efficacy, (6) fidelity of treatment, and (7) teachers' acceptance of the entire practice.

It should be noted that the outcomes of both units of analysis were extensions of the relevant outcomes of the holistic case. At the unit of analysis 1, the research interests were limited to three areas: (1) behavioural performance of the group, (2) academic achievement of the group, and (3) teachers' acceptance of the secondary support. In a similar manner, three topics were also formed for the unit of analysis 2. They were: (1) behavioural performance of the group, (2) academic achievement of the group, and (3) teachers' acceptance of the tertiary support.

The students and teachers of the participating class were the foci of research interests throughout the design. The student participants were differentiated at the case

level and unit level. In accordance with the three-tiered preventative model, the entire class of students was the subject of the case level, whereas, the group that were involved at the secondary support tier, and the individual students involved at the tertiary support tier were the subjects of unit of analysis 1 and 2, respectively. The research subjects of unit of analysis 1 and 2 were still part of the research object of the holistic case.

3.4 The school

3.4.1 Access

Initial contacts were made to the local Education Bureau to gain approval for the conduct of the study. A letter enclosed with a detailed introduction to the study was posted to the officer who was in charge of primary education in the city. Having gained the support from the bureau, a second letter, which included the process for selecting the participating school, was sent to the same officer. As discussed, the case represents a typical case of practice of the CWPBS. Therefore, the potential class needed to satisfy three prerequisites for the approach (OSEP Technical Assistance Center on Positive Behavioral Interventions and Supports, 2009). First, the class should have manifested frequent and/or severe problem behaviours. Second, school administrators should have expressed an intention to improve the class and would provide support for the implementation. Last, the homeroom teacher of the potential class should have expressed an intention to improve the class and was willing to implement the practice.

In particular, the selection process required five steps:

Step 1: The local Education Bureau nominated one to three primary schools that had high records of problem behaviours.

Step 2: The school principal nominated one to three classes for the study.

Step 3: The researcher contacted the school principal for detailed information about the nominated classes.

Step 4: The researcher contacted the homeroom teacher of each nominated class for detailed information about the class and its problems.

Step 5: The researcher selected one class for the practice.

The officer from the local Education Bureau nominated School A and School B, and forwarded the research introduction to the principals. The principal of School A expressed some interests in the study and nominated one class. According to the principal, the class had poorer behavioural and academic performance than the other classes in the same grade. However, the homeroom teacher expressed reluctance to have the practice in her class. She thought implementing the approach in her class would label the class as a ‘problematic class’ and the children would be labelled as ‘problematic students’ in the school community. Given that the principal did not nominate other classes, the school was not selected for the practice.

The principal of School B contacted the researcher and expressed interest in the study. The principal introduced the study in the school weekly meeting with the teaching staff. During the meeting, the homeroom teachers who had difficulty with class management were encouraged to apply to participate in the study. More than half of the homeroom teachers in the school expressed their willingness. Having reviewed the records of class discipline and academic performance, the principal nominated one potential class and two substitute classes. The potential class had poorer behavioural records than most of other classes in the school. In addition, the previous academic records showed that it had the highest academic failure, compared with other classes of the grade. The homeroom teacher had an urgent need to improve the class and was open to accepting the new approach.

3.4.2 Ethical consideration

Having gained the support from the principal of School B, the formal permission for conducting the study was sought from the Human Research Ethics Committee at the University of Wollongong. Once granted, a copy of approval letter from the committee was sent to the local Education Bureau in China for documenting. Then, the written approval from the school principal was also sought. Given permission, a meeting was held between the relative teachers (the homeroom teachers and academic teachers of the class) and the researcher. During the meeting, the researcher detailed the study and

methods that would be used for the data collection. An individual information package that included an invitation letter, consent form and time schedule was left for each participating teacher to peruse and consider at their leisure. A week later, the researcher was contacted to collect the consent forms.

On the day of school orientation, the homeroom teacher dispensed individual information packages that included an invitation letter, consent form, time schedule, and two copies of the Child Behavior Checklist (CBCL) questionnaire to the parents of the participating class. The parents were also notified that each participant would remain confidential and referred to by a number and a pseudonym if necessary. In addition, their refusal to participate would not affect the relationships between them and the school. In the following week, all consent forms were returned.

3.4.3 The school context

School B is a private primary school located in a district where most of the residents are migrant labour. The school had 25 full-time teachers and enrolled 1,289 students, which consisted of 31 classes ranging from pre-school to Grade 6, for the 2011/2012 school year. According to the school's census, 96.8% of the students came from families without registered permanent urban residence. Among the parents, 70.3% were migrant workers, 10.8% were vendors and 9.5% were unemployed. The high percentage of migrant labour in the district also caused a large percentage of student mobility. The amount of student mobility (including transfer-in and transfer-out) made up 10 to 30% of the whole student population in a school year.

Student mobility and over-aging have become common issues for schools for migrant students. Chinese researchers (Huang & Xu, 2006; Xiang, 2005; Zhang & Gu, 2013) have pointed out that migrant students' mobility is a result of the instability of the working status of their parents. Wang's (2004) investigation of 595 migrant students across six cities with a high proportion of migrant workers reported that as high as 79.67% students had transferred schools due to their parents' working mobility, and 12.61% had two or more transfer experiences. High incidence of student mobility

accounts for the issue of over-aging (Huang & Xu, 2006). Migrant students often miss school registration during their family moves or are rejected by schools due to their inconsistent schooling history. An investigation of 120 migrant families across nine cities located from eastern to western China reported that only 40% of the children had received school education regularly, the rest had delayed schooling, drop-out, or periodical drop-out (Zou, Qu, & Zhang, 2005).

The school reputation was worse than that of the public schools in the district. The principal listed three reasons for this. First, the high rate of student mobility increased difficulties in school management and teaching effectiveness. Secondly, the teachers lacked effective strategies in instruction and classroom management, for most (about 80%) had fewer than five years teaching experience. Lastly, the parents paid little attention to the child's study and school life. The principal pointed out that many parents had to work long hours, thus, they did not have time to supervise the child at home. "Even though they have time", the principal added, "most of them pay a lot of attention on the child's physical health rather than study."

In order to improve the situation, the school had tried some methods in the previous school year. An SMS platform was established to increase school-family communication. For instance, parents received an SMS message about the content of homework every day. To improve the teaching effectiveness, the school invited experts and senior teachers from other schools to organise workshops for the teaching staff once a fortnight. The school administrators conducted routine checks three times per day to supervise student discipline and teacher instruction. Having these actions in place, the school showed some improvements.

However, as the principal pointed out, a few "problematic" classes such as the participating class, had not shown much progress, compared with other classes. As the researcher observed, the "problematic" classes were not responsive to the school routine check, though the administrators came to inspect the classes regularly. Having reviewed the routine check records, as well as talking with the homeroom teachers, the researcher

found that these classes could barely reach the minimum school requirements. Thus, the students in the class were unmotivated because they regularly received negative feedback from school administrators. At the same time, the homeroom teachers blamed the classes for their poor performances, which further lowered students' satisfaction of school life and motivation for learning. The academic teachers also expressed having difficulties when instructing the classes. Since a lot of time was devoted to class discipline in a typical class, lesson plans were difficult to be completed.

3.4.4 The participants

3.4.4.1 The class

The class was one of the four classes in Grade Five. It consisted of 18 female and 30 male students (see Table 4.1). Like many other classes in the school, this class had some issues that increased the challenge for classroom management. First, it had a female-male ratio imbalance. The population of male students was almost twice as many as the female students. Secondly, it had a high incidence of student mobility. Fifteen students (31.3% of the class) had been enrolled less than one school year, among whom 8 (16.7% of the class) had newly registered. Thirdly, it had a large proportion of over-age students. The proportion of normal age students (between age 9 to 10) was only one third of the total class population. The rest were one or two years above the normal age. Fourthly, the majority of the students came from families with low economic status. One fifth of the students had at least one parent currently unemployed. Among the parents who were employed, the majority (61.9%) were working as factory operators, drivers, and housekeepers.

According to the principal and homeroom teacher, the class had poor achievement in academic exams. For instance, 18, 32, and 18 students (out of a class of 48 students) failed in the Chinese Literacy, Math, and English as a Foreign Language in the final exams in the previous semester, respectively. Among the students who had failures, 19 had failed at least two subjects. The class also was poorer than the other classes in the same grade in classroom discipline and cleanliness. It was the only class

that did not win the “Modeling class” in the previous semester.

3.4.4.2 The students who received the secondary or tertiary supports

Four students were nominated to receive the secondary or tertiary supports after the primary support had been introduced. The demographic, academic and behavioural information of each student are shown in Table 3.1.

Table 3.1: Demographic, academic, and behavioural information of the individual students

	Student G	Student H	Student S	Student W
1. Demographic information				
Gender	Male	Female	Male	Male
Age	12	10	12	12
2. School achievement test Z-score (percentile rank) before the primary support				
Chinese Literacy	-2.69 (2)	-2.75 (1)	-3.40 (1)	-1.78 (7)
Math	-3.52 (2)	-4.23 (1)	-4.23 (1)	-1.61 (6)
English as a Foreign Language	-1.33 (11)	-1.50 (9)	-1.76 (2)	-1.35 (10)
3. School achievement test Z-score (percentile rank) before the secondary support				
Chinese Literacy	-3.46 (1)	-2.63 (3)	-2.25 (4)	-1.79 (9)
Math	-1.05 (17)	-2.06 (6)	-1.08 (16)	-1.69 (10)
English as a Foreign Language	-2.25 (1)	-0.08 (46)	-1.73 (3)	-1.25 (12)
3. TRF Internalising T-scores rated by the teachers before the secondary support				
Ms. Zhang	64**	73**	58	65**
Ms. Ji	70**	73**	61*	60*
Ms. Chen	58	74**	51	53
4. TRF Externalising T-scores rated by the teachers before the secondary support				
Ms. Zhang	74**	59	65**	66**
Ms. Ji	84**	55	60*	61*
Ms. Chen	64**	61*	62*	66**
5. TRF Total Problems T-scores rated by the teachers before the secondary support				
Ms. Zhang	75**	73**	65**	69**
Ms. Ji	81**	69**	64**	64**
Ms. Chen	66**	72**	62*	64**
6. Occurrence of targeted behaviors mean percentage (SD) in the primary support				
On-task behaviour	21 (12.34)	39 (16.62)	22 (14.10)	31 (9.53)
Assignment completion	17 (23.33)	17 (23.33)	0 (0.00)	38 (6.36)

Note. Z-score and percentile rank were calculated on the basis of the population of the Grade

Five (N=186). * t-score reaches the borderline clinical range, ** t-scores reaches the clinical range.

Student G had studied in the school since Grade One. He migrated with his parents to the city eight years previously. Later, his parents had worked in another city but left him in the city. During the time, he was cared for by his grandmother who was illiterate and unemployed. It was only in the last year that the parents came back to live with him. Currently, his father was a cook in a restaurant. His mother was unemployed but doing handcraft work at home to earn a living.

The student started to manifest problem behaviour from Grade One. He had low participation in school activities and had not completed any assignments for at least one school year. He was involved in fights and could not make any friends at school. None of his classmates would invite him to join in any class activities. His teachers tried hard to keep him calm in class so that he would not interfere with their instruction. If he continued to be annoying or aggressive, the teachers took him to the principal's office. The student's academic achievement was below most of his peers in the same grade. During the pre-secondary support assessment, the three teachers reported that this student had severe problems in socialisation and attention, and often displayed aggressive behaviour in and after classes. His mother was also aware of his problems in socialisation and attention, but was not aware of his aggression. As reported by the homeroom teacher, although the parents often punished him for his poor school performance, his problems had not improved. The teacher thought that the negative parenting influenced his aggression.

Student H had studied in the school since Grade One. She migrated with her parents to the city six years previously. Later, her parents gave birth to her younger brother who was currently studying in a public school in the city. Her parents and relatives had a family-run factory. She and her family lived in the factory. The student was unsociable and uninterested in school activities. She seldom took part in class activities and did not make friends at school. She often daydreamed during class instruction and gave up on in- and after-class assignments. According to her homeroom

teacher, the student completed about 30% of assignments in the previous semester. The student's academic achievement was below most of her peers in the same grade. According to the pre-secondary support assessment, all the teachers agreed that she had frequent internalising problems, including being alone, shy, passive in school work. However, her mother did not perceive any problem behaviour at the pre-implementation.

Student S had been enrolled in the school since Grade Three. His parents divorced and he lived with his mother who was a street vendor. After school, he helped his mother at the booth. The student was active and welcomed by the classmates during class break, lunchtime, and after school. However, he was bored and had low participation in class instruction. He often daydreamed, played with small toys, or fell asleep. He seldom completed assignments. His homeroom teacher reported that he only completed about 20% of his assignment in the previous semester. He looked very upset every time when the teachers called his name during class or blamed him for avoiding doing assignments. However, he was not trying to correct these problems. His academic performance was at the bottom of this grade. The teachers had perceived that his attention problems and low motivation in learning were the main causes of his academic failure.

Student W had enrolled in the school since the previous semester. He was the only child in the family. His father was a truck driver who was seldom home. His mother was illiterate and unemployed. As reported by the homeroom teacher, both of his parents did not spend much time on his school performance. The homeroom teacher found that his parents were unsupportive of school-family collaboration. Although the parent signed the consent form to participate in the present study, he did not complete the behavioural rating scale before and after the implementation. The student was passive and distractible in most of the class instruction. He avoided doing academic tasks that he was not good at. According to the homeroom teacher, he completed half of the assignments in the previous semester. His academic achievement was below most of

his peers in the same grade. According to the pre-secondary support assessment, all the teachers reported that he had attentive and externalising problems (e.g., argumentative, did not feel guilty after misbehaving).

3.4.4.3 Teachers

Ms. Zhang (pseudonym) was the homeroom teacher. She graduated with a Bachelor degree in primary education. The bachelor program was a four-year program that prepared university students to teach in primary schools. Her teaching expertise was Chinese Literacy and Morality. She had six years of teaching experience, including four years of being a homeroom teacher. She had become the homeroom teacher of Class Four since the previous semester. This semester she taught the class three subjects, namely, Chinese literacy, Morality, and Science. In addition to teaching, she communicated school expectations to the class, established routines and other regulations for running a manageable class. She also coordinated relationships between different groups, including teacher-student, peer, and parent-school relationships. In summary, she was responsible for every event that happened regarding her class.

The teacher believed that the students in her class were frank and kind in nature. In the previous semester, “We did not report a case of stealing or physical hurt”, she reported. “In a fund-raising event for a boy who had lost his home in a fire”, she added, “Our class was active, and our donation was the highest”. However, she was aware that the class was behind the other three classes in academic achievement and behavioural performance. She preferred using reward and punishment for her class. She reported that she rewarded the students who behaved well and punished those who broke the rules. Further, she rewarded the students who performed well in school exams, and punished those who failed the exams.

Ms. Ji (pseudonym) was the teacher of Math. She had graduated with a Bachelor degree in primary education the year before. The bachelor program was a four-year program that prepared university students to teach in primary schools. Her teaching expertise was Maths. This was her first year in formal teaching. She had taught Class

Four and another two classes Maths since the previous semester. As a teacher in her early career, she worked very hard. She prepared lessons carefully and assigned in- and out-class work to students every day.

Nonetheless, the teacher had experienced difficulty with the participating class. During the first PBS meeting, she said: “Class Four is the most troublesome class in the school.... Too many students in the class have behavioural problems.... They do not follow teacher’s instruction, talking with other students without my permission, day-dreaming, and do not complete in- and after-class work.” She felt pressure in teaching these students because she could not complete her lesson plans with this class. Sometimes, she had to spend more time on classroom management than instruction. In order to keep up with the teaching schedule, she had to take extra lessons for the class. “And this had even worse effect,” she evaluated, “Students looked tired and bored, and I am even more tired.” During the classroom observation before the implementation, it was found that Ms. Ji used negative strategies, including standing, slapping hands, and time out, on students who behaved poorly.

Ms. Chen (pseudonym) was the teacher of English as a Foreign Language. She graduated with a Diploma in primary education the year before and this was her first year in formal teaching. The diploma program was a three-year program that prepared university students to teach in primary schools. Her teaching expertise was English as a Foreign Language and Visual Arts. This semester, she taught all four classes of Grade Five. This was her first year in formal teaching. She felt pressure in preparing lessons at times. She also had encountered difficulty in communicating with the students and managing their behaviour. “Although I prefer having an interesting lesson, motivating the students,” the teacher quoted, “it is very hard to control the class. Either they are too excited and lost control, or too quiet and lost interest.... It is a little difficult for me to have a successful lesson and maintain good class discipline at the same time.” She also mentioned that even if she had a successful lesson, it would not change the issue that a great number of students did not do assignments. She was worried that most of the

students in the class might fail the subject. During the classroom observation before the implementation, it was found that Ms. Chen used negative strategies, including shouting and slapping the hands of students who behaved poorly.

3.5 The implementation of CWPBS

The practice of CWPBS lasted for 19 weeks and consisted of preparation and implementation phases (see Table 3.2 for the schedule and Appendix A for the implementation detail). The first three weeks were the preparation phase. For the research purpose, the implementation started from Week 4 and ended at Week 19, which was the last teaching week of the semester. Further, it was optional for the teachers to decide whether or not to continue the practice in the next semester. The researcher was willing to provide additional assistance if the teachers chose to continue the practice.

As suggested by the blueprint for implementing SWPBS (Sugai & Horner, 2002), a practice should start with establishment of the leadership team. In this practice, the PBS team consisted of Ms. Zhang, Ms. Ji, Ms. Chen, and the researcher. The team held regular meetings to develop and update interventions, evaluate progress, and solve problems. The meeting was normally held once every four weeks.

In Weeks 1 and 2, the researcher provided training for the teachers, including (a) introduction to the theoretical framework, critical features, and commonly used strategies, (b) introduction to the application and effect of approach, and (c) review of implementation examples and practices. The training consisted of three sessions, with each session lasting two hours. The content was developed from the training package of the Positive Behaviour for Learning (PBL) model for school communities in the Illawarra region, NSW, Australia (www.dec.nsw.gov.au).

3.5.1 The primary support

The intervention plan of primary support was developed in the second PBS meeting (Week 3). The primary support was implemented from Week 4 to Week 19. Three class-wide expectations, namely, “Be learning”, “Be respectful”, and “Be

responsible”, were developed. The behavioural matrix for explaining the desired behaviour in each teacher’s class was also defined (see also Appendix A). Copies of this matrix table were printed and posted on the class walls to remind students. The teachers were encouraged to teach these behavioural rules in routines.

A token system was established as the class-wide incentive system for reinforcing performance of desired behaviours. The teachers provided stamps to students who behaved appropriately. A list of rewards (e.g., stationaries, playing computer games for 10 minutes, free of an assignment) and cost of each reward was created during the second PBS meeting. The list was posted on the notice board of classroom. The students could exchange their stamps for rewards on every Wednesday and Friday afternoon. Class privileges were used as an advanced rewarding system to reinforce the expected behaviour that was displayed by most or all of the class. For example, if every student in the class had submitted all assignments on time in a school day, the homeroom teacher would play a 20-minute animated film to the class.

The teachers were encouraged to use strategies, including pre-correction, active supervision, specific praise to reprimand ratio of at least 2:1, and actively engaging students with academic-related tasks (see also Appendix A), to prevent the occurrence of predictable problem behaviour and facilitate the occurrence of expected behaviour. When students displayed problem behaviour continuously, the teachers might use punitive strategies, including inclusion time-out and exclusion time-out. Furthermore, the teachers were encouraged to follow the proper procedure of using negative strategies (see Appendix A) and also provide opportunities for correction to trigger the occurrence of expected behaviour.

3.5.2 The secondary support

The intervention plan of secondary support was developed in the third PBS meeting (Week 7). The secondary support was implemented from Week 8 to Week 19. Each teacher nominated three students who were not responding well to the primary support. Each teacher completed the TRF-CV and the simplified functional behavioural

questionnaire (adapted from Teacher Interview Protocol for Simple Functional Behavioural Assessment, see Crone & Horner, 2003) for each nominated student. Eventually, four students were selected as the recipients of the secondary support.

The CI/CO system was used for reinforcing the expected behaviour of the group. On-task and task completion were the expected behaviour for the four students to exhibit across a school day. The daily report card was designed and printed out. Each student in the group received a new daily report card (see Appendix A) at the beginning of a school day from the homeroom teacher. After a class, the teachers circled a grade (0, 1, 2, or 3) as a feedback of the student's performance on the expected behaviour. By the end of the school day, the homeroom teacher summed up all the grades and calculated the percentage of achievement. The students took the daily report card home and obtained the signature of their parents. The next school day, the students returned the card to the homeroom teacher and received a new card.

3.5.3 The tertiary support

The intervention plan of tertiary support was developed in the fourth PBS meeting (Week 12). The secondary support was implemented from Week 13 to Week 19. The teachers nominated Student G who was not responding well to the secondary support. Each teacher then completed the full functional behavioural questionnaire (adapted from Teacher Interview Protocol for Functional Behavioural Assessment, Crone & Horner, 2003) for the student.

Based on the information and assumption from FBA, the functional behavioural support plan was developed to improve daydreaming, assignment incompleteness, and tantrum throwing (Appendix A). The CI/CO system was modified, including providing more specific feedback, establishing differentiated rewarding, and associating individual performance to whole class privilege (group contingency), for responding to desired behaviour. Moreover, procedures for responding to problem behaviour were developed, including using academic prompts, providing differentiated tasks, and the procedure for controlling tantrum throwing.

Table 3.2: Time Schedule for the Implementation and Data Collection

Calendar (By Week)	Key Task		PBS Meeting Agenda	
W1	1. Established PBS team 2. Training		1. The researcher explained team responsibility; 2. Discussed strengths and weaknesses of the class.	
W2	1. Training 2. Data collection at the pre-implementation			
W3	1. Developed primary prevention 2. Data collection		1. Defined class expectation and behavioural matrix; 2. Designed incentive system; 3. Designed system for discontinuing problem behaviour; 4. Developed procedures for monitoring and evaluating progress.	
W4	1. Intervention Phase 1: the primary support 2. Data collection	1. Intervention Phase 2: the primary and secondary supports 2. Data collection		
W5				
W6				
W7			1. Discussed general satisfaction of the primary prevention; 2. Reviewed and updated the current intervention; 3. Determined students who were appropriate for the secondary prevention; 4. Designed procedures for the secondary prevention.	
W8				
W9				
W10				
W11				
W12			1. Updated behavioural matrix; 2. Discussed general satisfaction of the primary and secondary preventions; 3. Reviewed and updated the current intervention; 4. Determined students who were appropriate for the tertiary prevention; 5. Designed procedures for the tertiary prevention.	
W13			1. Intervention Phase 3: the primary, secondary, and tertiary supports Tertiary Prevention 2. Data collection	
W14				
W15				
W16	1. Discussed general satisfaction of the primary, secondary, and tertiary preventions; 2. Reviewed and updated the current interventions			
W17				
W18				
W19				
W20	1. Data collection at the post-implementation			

3.6 Data collection

In order to conduct an in-depth investigation of the research questions, multiple

sources of data were used (see Table 3.3). The data consisted of quantitative data (e.g., behavioural rating scale) and qualitative data (e.g., teacher interview). Moreover, the data were sought from the perspectives of the homeroom teacher, academic teachers, students and parents.

Five types of data were collected, namely direct observation of behaviour, participant observation, interviews, documents and questionnaire. The first four types are common methods of data collection in all case study designs (Creswell, 2007; Yin, 2009), and questionnaires are particularly useful in embedded case study designs (Scholz & Tietje, 2002). In the following paragraphs, the rationale for the selection and the general procedure of each data collection tool is explained.

Table 3.3: Specific Research Questions, Sources of Data, and Data Analysis

Specific Research Question	Source of Data	Data Analysis
1. What are behavioural outcomes associated with the implementation of CWPBS?	a. Direct observation of Off-task and Inappropriate talking of the class, and On-task of the four students b. Participant observation of PBS regular meetings c. Questionnaire: CBCL-CV and TRF-CV d. Record of assignment completion f. Teacher interview about the perceived problem behaviour of the class	a. Time-series analysis b. Qualitative data analysis c. A paired-sample t-test and calculation of effect size for CBCL-CV; Descriptive analysis for TRF-CV. e. Time-series analysis g. Qualitative data analysis
2. What are academic outcomes associated with the implementation of CWPBS?	a. Participant observation of PBS regular meetings b. Record of school achievement test results	a. Qualitative data analysis b. A paired-sample t-test of Z-scores and calculation of effect size for the holistic case; Descriptive analysis of Z-scores and percentile rank for the embedded units of analysis.
3. How have students' perceptions of quality of school life changed in association with the implementation of CWPBS?	a. Questionnaire: QSL-CV	a. An independent-samples t-test and calculation of effect size
4. What is the fidelity of implementation?	a. Direct observation of teachers' use of desired strategies	a. Calculation of percentage of occurrence and percentage of compliance for individual and total strategies, respectively.
5. How have teachers' management strategies changed in association with the implementation of CWPBS?	a. Teacher interview about their behavioural strategies in relation to classroom problem behaviour	a. Qualitative data analysis
6. How have teachers' teaching efficacy changed in association with the implementation of CWPBS?	a. Teacher interview about their sense of teaching efficacy	a. Qualitative data analysis for narrations, and calculation of the score of each subscale of TES-CV.
7. What is teacher acceptance about CWPBS?	a. Teacher interview about the perceived problem behaviour of the class b. Teacher interview about their general satisfaction with the procedures and outcomes of the implementation	a. Qualitative data analysis b. Qualitative data analysis

3.6.1 Direct observation

Direct observation was used to collect data on student and teacher behaviour

during classroom instruction. This method is considered an appropriate data collection method for uncovering a phenomenon or a group of people (Smith, 1978; Stake, 1995). It allows for a close and direct look at the research object without interfering with it. During direct observation, the researcher needs to be ‘on site’, and observes and notes down what is happening. Smith (1978) pointed out that the chance that participants respond unnaturally is much smaller in direct observation than in questionnaire, test or interview conditions.

In addition, direct observation is a key method for measuring behaviour in ABA (Alberto & Troutman, 2009). Most research designs (e.g., single-subject designs) on the use of ABA depend on data collected from this method. As PBS evolved from ABA and shares common methods in data collection, direct observation is also a dominant method to measure behaviour in the practice of PBS (Dunlap, et al., 2008).

3.6.1.1 Observation of students’ behaviour

The purpose of measuring student behaviour in the present study was to examine the change in the targeted behaviour of the class, group or individual students throughout the practice. The procedure may be described as follows:

Step 1: Establish an observable and measurable definition for targeted behaviours

Based upon teachers’ responses about problem behaviour in the class through interviews at pre-assessment (see section 3.5.3.1, and also Table 4.3 in Chapter Four), three targeted behaviours were defined, namely, off-task behaviour, inappropriate talking, and on-task behaviour. These behaviours were defined below:

- a. Off-task behaviour was defined as not being oriented towards the task assigned by the teacher for at least three consecutive seconds of an interval of five seconds.
- b. Inappropriate talking was separated into two categories: (1) calling-outs were defined as verbal utterances that interrupted teacher instruction, comments, and questions, or student participation, without being called on

by teachers, and (2) whispering was defined as talking to other students without teacher permission. Inappropriate talking was identified if it had been observed for at least three consecutive seconds of an interval of five seconds.

- c. On-task behaviour was defined as doing the task assigned by the teacher for at least four consecutive seconds of an interval of five seconds.

Step 2: Develop observation rules

Direct observation was conducted by taking the class or individual students as a unit. At the class level, the occurrences of off-task behaviour and inappropriate talking were observed in a time series manner between Week 2 and Week 19. In an observation, ten students were observed for a total of 20 minutes, each of which was observed for two consecutive minutes. The observation was conducted three to five times per school week that consisted of five school days.

Before an observation, ten students were randomly selected as subjects of the observation. Before selection, the researcher prepared two boxes. The first box contained eight numbers, each of which represented a column of the classroom. The second box contained six numbers, each of which represented a row of the classroom. In selecting a subject, the researcher randomly took a number from each box. This pair of numbers represented seat location of the subject.

At the individual students' level, the occurrences of on-task behaviour were observed in a time series manner between Week 6 and Week 19 for the four students who received the secondary or tertiary supports. Before an observation, one of the students was randomly selected as the subject. An observation lasted for ten consecutive minutes. Each of the students was observed two or three times per school week.

Step 3: Develop the observational form.

The observational formats (see Appendix B for the class level and Appendix C for the student level) were adapted from the observational recording system recommended by Alberto and Troutman (2009) for recording students' behaviour.

Partial interval recording was used to determine the length of time the student performs the target behaviour(s). Each interval was five seconds long, meaning that 12 intervals make up one minute. This is because the shorter intervals that occur, the more accurate the data collected (Alberto & Troutman, 2009). The occurrence of off-task behaviour, inappropriate talking, and on-task behaviour in an interval was marked “O”, “I”, and “+”, respectively, on the form.

Step 4: Conduct the observation.

The class, teachers, and parents were informed at the beginning of the semester that direct observation might be taken at any class instruction of a school day. Audio cues were played on an MP3 device for reminding the observers when each interval began. Rehearsals were conducted until both the students and teachers felt comfortable with the observation. To minimise interference with students’ and teachers’ behaviour, all the participants were unaware who was being observed.

3.6.1.2 Observation of teachers’ behaviour

The purpose of measuring teacher behaviour was to determine treatment fidelity. The procedure is described as follows:

Step 1: Develop appropriate management strategies (see also Appendix A Classroom Behavioural Support Plan), including:

- a. Pre-correction: teacher-directed antecedent activities (e.g., adjusting the physical environment) for preventing the occurrence of predictable problem behaviour and facilitating the occurrence of expected behaviour (Colvin, et al., 1997; De Pry & Sugai, 2002).
- b. Active supervision: teacher-directed overt behaviours (e.g., moving, interacting) for preventing the occurrence of predictable problem behaviour and facilitating the occurrence of expected behaviour (Colvin, et al., 1997; De Pry & Sugai, 2002).

- c. Specific praise to reprimand ratio is at least 2:1³. Specific praise is a verbal comment or gesture that acknowledges and names an appropriate behaviour or academic performance of the student (Reinke, et al., 2013). Reprimand is a verbal comment or gesture that indicates disapproval of behaviour or academic performance of the student (Fairbanks, 2007).
- d. Actively engaging students with academic-related tasks: academic-related interactions (e.g., ask and answer, role play) initiated by the teacher for promoting learning-related behaviour and preventing the occurrence of predictable problem behaviour.
- e. Rewarding: Giving materials or tokens to the student in acknowledgement of appropriate behaviour or academic performance.
- f. Opportunity for correction: The student has a chance to display appropriate behaviour and will receive the teacher's positive acknowledgement after the student has received a negative response from the teacher.
- g. Follow the proper procedure of using punishment for reducing the occurrence of problem behaviour: Teachers should start with less aversive procedures (e.g., verbal reminding accompanied with a suggestion, response cost) before the use of exclusion time-out. Once the student terminates the problem behaviour, the teacher should also terminate the current punishment. Corporal punishments and insulation should not be used on students on any occasions.

Step 2: Decide observation rules.

Direct observation also targeted individual teachers. The observation started from the first week of the implementation (Week 2) and ended at the termination of the

³ Although a ratio of 4:1 for praise to reprimand is highly recommended in PBS manual for western schools (e.g., www.pbis.org), in the current practice, a ratio of 2:1 for specific praise to reprimand was adopted. Specific praise is defined as a verbal statement or gesture that indicates the approval and names the appropriate behaviour (Reinke, et al., 2013). Specific praise has been found to be more effective than general praise (i.e., a verbal statement or gesture that indicates the approval without naming the appropriate behaviour) with regard to classroom management (Simonsen, et al., 2014). However, given that specific praise requires a teacher to name the appropriate behaviour, it often occurs at a lower rate than of general praise (Reinke, et al., 2013). The participating teachers agreed with the usage of specific praise and suggested that a ratio of 2:1 for specific praise to reprimand was appropriate for their instruction.

implementation (Week 19). An observation lasted for an entire class instruction (40 minutes). Each of the teachers was observed one or two times per school week.

Step 3: Develop the checklist.

The checklist format (see Appendix D) was adapted from the training package of the Positive Behaviour for Learning (PBL) model for school communities in the Illawarra region, NSW, Australia (www.dec.nsw.gov.au). The original form was used by school personnel to assess the effectiveness of classroom management. The present checklist was used to assess the degree to which the teacher was acting in accordance with the blueprint (see Appendix A). Each element was marked “In place”, “Partially in place”, “Not in place”, or “Not required” by the end of the observation.

Step 4: Conduct the observation.

To minimise interference with teachers’ behaviour, the subject was not informed of specific observation prior, during, or after the observation.

3.6.1.3 Inter-observer agreement

The reliability of observational data, or inter-observer agreement, refers to the “degree to which they can be generalized from a given set of ratings to those that other raters might make” (Wiggins, 1973, p. 285). In the study, the researcher who had extensive experience in observation served as the primary observer. An undergraduate student, who was in the final year of Primary Education and taking an internship in the school, served as the reliability observer. The student attended a two-hour training session in which the observation procedures and techniques were described and practised. Field practice was conducted until the observers met 80% of inter-observer agreement, suggested as the acceptable value (Hartmann, 1977).

Inter-observer agreement was assessed on a minimum of 40% of the observations. In calculating the percentage agreement reliability, the number of agreements was divided by the number of agreements and disagreements of an observation and then multiplied by 100% (Hartmann, 1977). In addition, the coefficient *kappa* of inter-judge agreement for nominal scales was calculated. According to Cohen

(1960), *kappa* is determined by $(p_o - p_c)/(1 - p_c)$, whereby p_o refers to “the proportion of units in which the judges agreed” (p. 39), and p_c refers to “the proportion of units for which agreement is expected by chance” (p. 39). The results were entered into IBM® SPSS® (Statistical Package for the Social Sciences) Version 21 to determine the coefficient *kappa*. It is suggested that the acceptable *kappa* coefficient should exceed .60 (Gelfand & Hartmann, 1975).

The average inter-observer reliability across all the targeted behaviour was 94% (range = 83-100%), and the average *kappa* coefficient was .77 (range = .52- 1.00). As for the treatment fidelity, the average inter-observer agreement across the observations of all the teachers’ fidelity was 91% (range = 71-100%), and the average *kappa* coefficient was .89 (range = .85- .92).

3.6.2 Participant observation

Participant observation was used to collect data on teachers’ perceptions of the implementation and its effects. The distinction between participant observation and direct observation is whether there are interactions between the observer and participant (e.g., Goetz & LeCompte, 1984; Pelto & Pelto, 1978). As mentioned above, during direct observation, the observers are passive to the subjects because they do not interfere with the event. In contrast, participant observation requires the observers to be active, such as taking a role in the event and interacting with participants. A main advantage of the latter method is that it allows the observer to more deeply explore a phenomenon through interaction between the observer and participants (Yin, 2009).

The present design adopted Yin’s perspective that during participant observations, the researcher was not just being ‘on site’ but also active. The observations were conducted during PBS team meetings. The meetings were for the teachers to review and discuss their current practice, develop future plans and solve problems. During the meetings, the researcher played the role of trainer who listened to the discussions, taught techniques to the teachers, and provided them with advice. Throughout these interactions, the researcher gained explicit information with respect to

student behaviour change and academic improvement, teacher perceptions of the practice, and issues that inhibited the implementation. Since the meetings were held regularly, another advantage of using participant observation was continuously recording the teachers' feedback throughout the entire practice. These records provided evidence on teacher attitude and belief with respect to the implementation.

Five PBS meetings were held throughout the practice (for meeting agendas see Table 4.1). The teachers' opinions on the current implementation and its effects were discussed from the third meeting to fifth meeting. During the meetings, team members were asked the following questions:

- a. What behavioural and academic outcomes have you perceived?
- b. How satisfied do you feel with the procedures?
- c. How satisfied do you feel with the outcomes?

During the observation, the researcher took notes of useful information, including words and other information from the conversations, facial expressions and gestures. In some cases, the researcher would initiate a discussion. For example, when there was a need for a further discussion on an important topic, the researcher would ask questions of the teachers to advance the discussion. In addition, the entire meeting was tape-recorded, which provided supplementary evidence to observation.

3.6.3 Interview

Interviews were used to collect teachers' perceptions on four topics:

- a. Problem behaviour of the class
- b. Management strategies of the problem behaviour
- c. Teaching efficacy
- d. Satisfaction with the practice

Merriam (1988) argued that the interview was particularly useful for collecting evidence that is not easily observed. The rationale for using interviews in the present study was based on two needs. First, there was a need to collect teachers' thoughts. Secondly, there was a need to collect evidence that happened in the past and could not

be replicated. All the topics were reflected on by the teachers based upon their previous experiences. The data collecting procedure of each topic is illustrated in below sections.

3.6.3.1 Problem behaviour of the class

The interview questions (see Section A of Appendix E) were adapted from Ding and colleagues' study (2008) that focused on Chinese teachers' perceptions of classroom problem behaviour. The researchers developed the interview protocol purposefully for primary school teachers in Mainland China. These interview questions were verified in their follow-up investigation of 244 Chinese teachers. In this study, the teachers were interviewed about problem behaviours, including the most common and troublesome problems, which they had perceived during teaching. In addition, they were asked to estimate the prevalence rates of the problem behaviours.

Individual interviews were conducted at pre-and post-implementation for the three teachers. Appointments were made with each teacher in advance so that they could decide an appropriate time and place. The conversations were tape-recorded for the purpose of data analysis.

3.6.3.2 Management strategies of the problem behaviour

The interview questions (see Section A of Appendix E) were adapted from another study of Ding and colleagues (2010) that examined Chinese teachers' attribution and management strategies of classroom problem behaviour. The researchers developed the interview protocol and validated it in the follow-up investigation of 244 Chinese teachers. In the present study, before the implementation, the teachers were asked to describe the management strategies that they had used to solve the perceived problem behaviour. After the implementation, they were asked to describe the management strategies that they would use to solve the perceived problem behaviour. In addition, they were asked to talk about their confidence and efficacy in using the strategies. This part of the interview was conducted along with the interview on problem behaviour of the class (section 3.5.3.1).

3.6.3.3 Teaching efficacy

Intra-method mixed questions were developed for collecting data on the teachers' sense of teaching efficacy. A number of researchers (e.g., Johnson & Christensen, 2008; Johnson & Turner, 2003; Patton, 1990) have suggested using mixed interviews to collect more complete evidence. In general, these researchers agree that qualitative and quantitative methods both have strengths and weaknesses, and the use of mixed methods can minimise the weaknesses of the individual method. Furthermore, the use of mixed interviews produces convergent evidence in an investigation. This will allow a more accurate interpretation of an issue. In particular, integration of interviews with a questionnaire or checklist that has good documented validity and reliability can result in the most accurate evidence on a phenomenon (Turner, 1998).

This interview (see Section B of Appendix E) was designed as an integration of qualitative interview and the Chinese version of Teachers' Sense of Teaching Efficacy Scale (TES-CV). There are two rationales for such integration. First, it is difficult to design valid and reliable interview questions that fully reflect the teacher's sense of teaching efficacy (Tschannen-Moran & Woolfolk-Hoy, 2001). The teacher's sense of teaching efficacy is a theory that refers to a teacher's belief in his or her own ability to influence students' positive performances (Gibson & Dembo, 1984). The construct of theory involves varied internal and external factors in regards to the teacher's perspective of student performance change.

Second, the use of the TES-CV enhances the quality of the interview. The questionnaire was developed based upon Gibson and Dembo's Teacher Efficacy Scale (1984) and Ashton's model of teacher efficacy (1984) and also developed to fit into the Chinese context (Yu, et al., 1995). It has been widely used in China for more than two decades (Tang, 2014; Wang, 2008; Zhao, et al., 2005). It consists of 27 items that consist of two dimensions, namely, personal teaching efficacy and general teaching efficacy. Teachers are required to rate on a 6-point Likert scale from definitely disagree (1) to definitely agree (6). The questionnaire has reported good validity ($= .77$) and

reliability ($= .84$) by Yu, Xin and Shen (1995) who used it to measure 131 pre-service teachers and 252 in-service teachers. In addition, good internal consistency of $\alpha = .88$ was documented in the study by Zhao et al. (2005).

The interview was conducted pre- and post-implementation and along with the interviews of the above-mentioned two topics (section 3.5.3.1 and 3.5.3.2). During the interview before the implementation, the teachers were requested to complete the TES-CV questionnaire. They were requested to provide reasons for each of the items to which they had responded 'definitely disagree', 'moderately disagree', 'moderately agree' or 'definitely agree'. During the interview after the implementation, the teachers completed the same questionnaire. The researcher then compared the answers to each item between pre- and post-implementation. For the items that had a discrepancy of answer in two scales or more, the teachers were asked to provide reasons for such a difference.

3.6.3.4 Satisfaction with the practice

The interview questions (see Section C of Appendix E) were adapted from the subjective evaluation of social validation developed by Gresham and Lopez (1996). The original interview protocol consisted of 14 questions that addressed three aspects of social validation, namely, Social significance of goals (e.g., Which behaviours are the most problematic for your child in learning?); Social acceptability of procedures (e.g., How do you feel about the training program?); and Social importance of effects (e.g., What are the outcomes that you have perceived from use of the training program?). The present study excluded the questions of the dimension Social significance of goals because the interview on problem behaviour of the class (section 3.5.3.1) had a similar goal and questions. During the interview, the teachers were asked to provide responses to four questions in regards to social acceptability of procedures and social importance of effects, respectively.

The interview was conducted after the implementation, along with the other three topics interviewed at that stage. Gresham and Lopez (1996) emphasised that

assessing teachers' acceptability of a treatment after their actual experience was more reliable than that completed on the basis of hypothesising. This is because teachers may have a low correspondence between their estimation of acceptability and actual feeling after they have gone through the treatments.

3.6.4 Documents

Documents were reviewed to assess students' academic performance throughout the implementation. Unlike the sources of evidence that were produced for research purpose such as observation and interview, documents were not produced for such a purpose, but for practical purposes in the school environment. Because documents exist independently of a specific study, they are regarded as the most objective or unobtrusive data by the researcher (Merriam, 1988). Moreover, in a study with mixed methods, reviewing documents can verify the quality of other sources of data (Johnson & Turner, 2003).

Stake (1995) emphasised that school documents such as achievement test results were important evidence in program evaluation. This is particularly true in the present study, which sought to evaluate the effect of the CWPBS practice. Considering the principles of the SWPBS, the practice should be congruent with school or class expectations (Sugai & Horner, 2008). In most cases, these expectations are evident in activities such as school exams. Therefore, records of these school activities are data to suggest the effect of the practice.

The present study used one school document, that is, the records of achievement exams and one class document, that is, daily record of assignment submission. These records were important evidence of students' performances for the school, as well as the present study. Reviewing these records was used also as a means of triangulation with other sources. Another advantage of reviewing the records is that they can be used to demonstrate the development of the students, as they recorded students' day-to-day performances.

3.6.4.1 The records of achievement exams

Achievement exams were organised by the school at the beginning, middle, and end of the semester. Students in Grade 5 were required to take part in exams on three subjects, namely, Math, Chinese literacy, and English as a foreign language. The school had a well-developed system to manage achievement exams, including designing the instruments, organising exams, marking and documenting. In regards to documenting, the homeroom teachers recorded each student's marks on every subject, and then submitted the records to the school administrator for profile. The exams covered all the knowledge and skills that a student was expected to master. The records were one of the key documents used by the school to track and display students' academic performances. In addition, they were important evidence for the evaluation of teacher performance.

3.6.4.2 The daily record of assignment submission

This document was created by the homeroom teacher of the participating class. It recorded students who did not submit assignment(s) on each school day. The class had shown a chronic problem in completing assignments. The teacher kept such records for the purpose of communicating with students and the parents in regards to academic performance, which was a part of her class management. The records revealed the teacher's expectation of the class's performance. It was also an important source of data on students' outcomes of the implementation in the present case.

In order to validate the records, the researcher took part as the reliability observer. Inter-observer agreement was assessed on a minimum of 20% of the recordings. The percentage of agreement reliability was calculated by dividing the number of ratings on which Ms. Zhang and the researcher agreed by the number of agreements plus disagreements across the inter-ratings in a week and multiplied by 100%. The coefficient *kappa* across all the ratings was also calculated. The average inter-observer agreement was 87% (range= 63-100%), and the *kappa* coefficient was = .85.

3.6.5 Questionnaires

Three questionnaires, that is, the Chinese version of Child Behavior Checklist (CBCL-CV), the Chinese version of the Teacher's Report Form (TRF-CV), and the Chinese version of Quality of School Life Questionnaire (QSL-CV), were used for assessing students' outcomes.

Using questionnaires is a common data gathering method in the embedded case design (e.g., Christ & Makarani, 2009; Sanguenza, 2010). The method allows for describing certain conditions individually or integrated with other methods (e.g., integrated with the interview as discussed) to ensure the data are more accurate and complete (Scholz & Tietje, 2002; Yin, 2012). Questionnaires are also an accepted approach for measuring psychological traits in the case study (Bromley, 1986; Dunbar, 2005). In addition, well-established questionnaires such as the CBCL could measure those behaviours that are difficult to determine in the interview (Achenbach et al., 2008). Therefore, many researchers prefer using the questionnaire to measure problem behaviours (e.g., Barkley & Edwards, 2006; Hong, Yufeng, Agho, & Jacobs, 2011).

3.6.5.1 The Child Behavior Checklist

The Child Behavior Checklist (CBCL; Achenbach, 1991a; Achenbach & Rescorla, 2001) is a standardised questionnaire rated by parents to measure a child's behavioural and emotional problems. It is one of the most widely used checklists for assessing behavioural problems. It has been used in varied cultures and translated into more than 65 languages, including Chinese (Achenbach, 2010; Achenbach, et al., 2008). It consists of 118 specific behavioural items and two open-ended questions for overall positive and negative feelings about the target child in the preceding 6-month period. Parents rate each behavioural item on a 3-point Likert scale: not true (0), somewhat or sometimes true (1), or very true (2) in the preceding 6-month period. By summing the ratings, 8 syndromes (e.g., attention problems), 2 second-order scales and total problems can be created. The Chinese version of the CBCL (CBCL-CV; see Appendix F) was used in the present study. It is reported to have a good to excellent test-retest

reliability (ICC= .83) and validity (AUC= .85) (Leung et al., 2006).

The questionnaire was used to measure problem behaviours of the class at the pre- and post-implementation stages. On the day of school orientation, the parents received two copies of the CBCL questionnaire (one for pre-implementation assessment and one for post-implementation assessment) enclosed with two blank envelopes and other documents (see also section 3.4.2) from the homeroom teacher. To maximise reliability of the measurement, the same parents were required to complete the questionnaire at both stages. The parents were requested to complete the questionnaire for pre-implementation assessment before the end of Week 1, and complete the questionnaire for post-implementation assessment before the end of Week 20. The homeroom teacher sent a reminder SMS to every parent during the two weeks. The parents were requested to seal the completed questionnaire in the envelope and place it in the box at the school receptionist. The researcher collected the questionnaires from the receptionist to avoid any interference with the participating teachers who were also required to complete the questionnaire for some of the students. A copy of scoring profiles was provided confidentially to the parents in Week 20. To the students who had demonstrated problem behaviour, the parents might use the document as a reference for further assessment in hospital.

3.6.5.2 The Teacher Report Form

The Teacher Report Form (TRF; Achenbach, 1991b; Achenbach & Rescorla, 2001) is the teacher version of the Child Behavior Checklist. Similar to the CBCL, the TRF consists of 118 specific behavioural items and two open-ended questions for overall feelings about the child. Teachers are required to rate the target child on the preceding 2-month period. Its scoring system and the functional scales are identical to the CBCL. In the present study, the Chinese version of TRF (TRF-CV; see Appendix F) was used. It is also reported to have a good to excellent test-retest reliability (ICC = .85) and validity (AUC= .91) (Leung, et al., 2006).

The questionnaire was used to measure behavioural problems of the four

students who received the secondary or tertiary supports. The participating teachers were required to complete the questionnaire for each of the students before the secondary support and after the termination of the entire implementation. The researcher put the questionnaire in a blank envelope and gave it to the teacher. After completion, the teacher had to seal the questionnaire into the envelope and hand it to the researcher.

3.6.5.3 The Quality of School Life Questionnaire

The Quality of School Life Questionnaire is designed to measure primary school students' satisfaction towards school life. It was developed by Ainley, Goldman and Reed (1990) on the basis of the Williams and Batten's framework of QSL (Williams & Batten, 1981) and Bourke's (1986) initial version of school life questionnaire for primary school students. It consists of 40 items that fall into two general subscales (positive affect and negative affect) and five special subscales (achievement, opportunity, status, identity and teachers). Individual students are requested to rate on a 4-point Likert scale: definitely disagree (1), mostly disagree (2), mostly agree (3) and definitely agree (4). It is reported to have good reliability on each subscale (coefficient alpha ranges from .73 to .83), acceptable to good Eigen value on each subscale (ranges from 1.3 to 7.4), and high factor loading on each item ($\geq .5$; Ainley, et al., 1990).

The back translation (see Figure 3.3 for the procedure) was administered to ensure that the Chinese and English language in the questionnaire were equivalent. The process continued until the final version was agreed by both the Chinese and English native speakers. Three rounds of back translation were conducted before both the Chinese and English native speakers agreed with the translation respectively. The questionnaire (see Appendix G) was used to measure students' satisfaction towards school life in the study at the pre- and post-intervention stages.

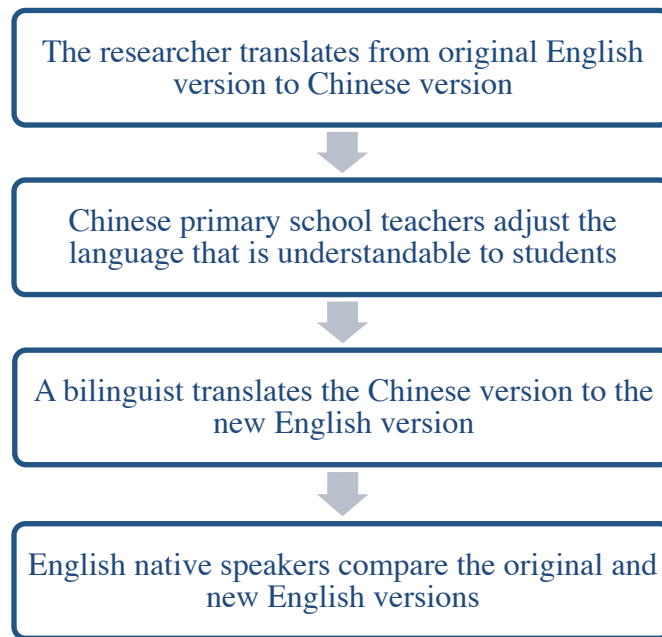


Figure 3.3: Back Translation Procedure

The students of the class were required to complete the questionnaire at pre- and post-implementation. The homeroom teacher assisted the researcher to dispense the questionnaire to the students. To maximise reliability of the measurement and minimise potential discomfort from teachers, schools, and parents, the students completed the questionnaire anonymously. After completion, the students had to place the questionnaire in the box at the reception. The researcher collected the questionnaires.

3.7 Data analysis

Data analysis employed multiple methods, including qualitative and quantitative data analysis procedures. Moreover, quantitative data analysis contained descriptive and statistical analysis, and time-series analysis. Although these methods have distinct procedures grounded on different analytical logic, the common feature is that analysis and interpretation align to the relevant hypothesis or research question. This helps to enhance the quality of the case study (see next section).

3.7.1 Qualitative data analysis

Qualitative data analysis was used for the data collected from interviews (excluding the data from the TES-CV) and participant observation. The spiral process

(see Figure 3.4), consisting of data managing, reading and memoing, describing, classifying and interpreting, and representing and visualizing, proposed by Creswell (1998; 2007) was adopted as the analysis procedure. The main strength of the process is that it engages the researchers in the analytical process progressively, and allows for psychological process in “learn by doing” (Dey, 1993, p. 6). The process is also congruent with the logic of evaluative case study in that inquiry is “progressively focused” (Stake, 1995, p. 133).

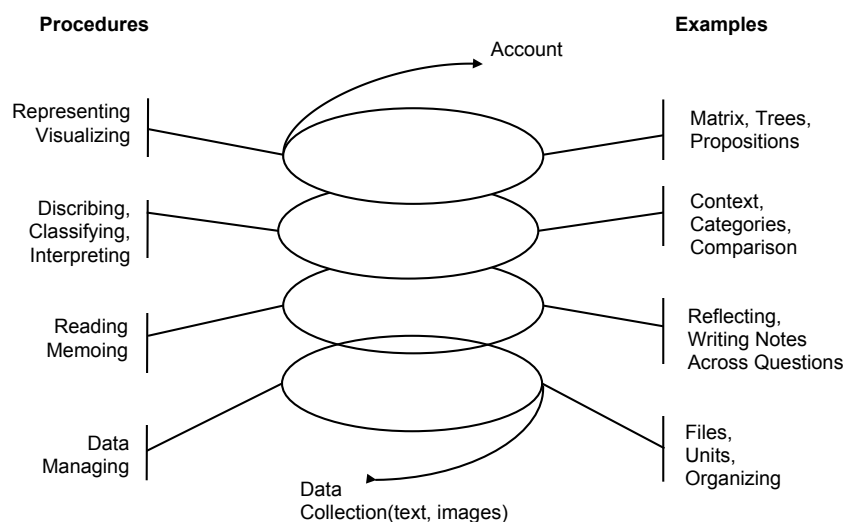


Figure 3.4: The Data Analysis Spiral (Adapted from Creswell, 2007, p. 151)

At the data managing stage, the raw materials (e.g., transcripts) were converted to electronic files and sorted into units, which was to form the initial database. An overview file was created for displaying the basic information (e.g., people, place, time) about each unit. It also helped the researcher to locate a specific unit and categorise themes (Merriam, 1988). This step started once the raw data were obtained, and the data collected later were added in constantly.

Once the material was sorted, the researcher began the reading and memoing step. The text files were printed and read carefully several times. Then, notes that contained key concepts or main ideas were written down in the margins of the texts to form the initial codes. This step helped the researcher concentrate the massive data set and keep refining the concepts (Neuman, 2010). This step was conducted on a continuous basis.

During the describing-classifying-interpreting process, a list of primary codes was developed to match the text segments. The researcher continued refining these codes and aggregated them to categories or themes that were associated with research questions and taxonomies from the research literature. For instance, the teachers' management strategies of problem behaviour (Research question 5: What teachers' management strategies have changed in association with the implementation of CWPBS?) were classified into three categories (namely, positive, negative, or neutral) that built on two previous studies (Ding, et al., 2010; Martin, Linfoot, & Stephenson, 1999). Additionally, the data representational techniques such as matrices and concept maps were used to assure establishment of the categories or themes within the framework of the study (Miles & Huberman, 1994). Finally, interpretation was developed based on the researcher's insight of the research questions, implementation, and issues from the research literature.

Given that the raw interview transcripts were in Chinese, a translation process was conducted. Chen and Boore's (2010) translation process during data analysis was adopted. In cross-language qualitative research, this process allows for a reliable consideration of cultural and contextual factors (Chen & Boore, 2010). The researcher who is a native speaker of Chinese used Chinese as the medium language for data analysis till the categories or themes were generated. The researcher then translated the categories or themes from Chinese to English. Another Chinese-English bilingual speaker who was a PhD candidate and specialised in Education undertook the back-translation. Finally, a linguistic expert who has been accredited as a translator by The National Accreditation Authority for Translators and Interpreters (NATTI) provided a check for accuracy in translation.

The outcomes of the analysis are presented in the next two chapters that present students' and teachers' outcomes, respectively. The description and discussion are accompanied with tables where appropriate.

3.7.2 Quantitative data analysis

Quantitative data analysis⁴ was used for data collected from the questionnaires (including the questionnaire integrated in the interview) and records of achievement exams. Before the analysis of each source of data, a list of codes was created for allocating certain numbers to variables. The Microsoft Excel for Mac 2011 was used as the program for documenting, descriptive analysing and outputting data (e.g., in the form of table). The IBM® SPSS® Version 21 was used as the program for T-test, Z scores, and percentile ranks. The Effect Size Calculators developed by University of Colorado (Becker, 2000) were used to calculate Cohen's *d*. Descriptive analysis was applied to indicate general tendencies in the data (mean, mode, median), the spread of scores (variance, standard deviation, and range), or comparison of a variable between the pre- and post-implementation stages. The specific procedure for analysing each type of questionnaire is described in the following sections.

3.7.2.1 The CBCL-CV

The t-score of each category on individual students was created by using the scoring profiles of Chinese boys or girls purchased from a distributor of The Achenbach System of Empirically Based Assessment (ASEBA). All the scores of a category were then summed up and divided by the total number of valid respondents to calculate the mean score of a category. A paired-sample t-test was calculated to examine the difference of problem behaviour of each category between pre- and post-implementation. The test is recommended to determine statistical significance when the subjects are matched in pairs of similar units, which has better Type I error control for a large sample size and Type II error control for a small sample size (Mara & Cribbie, 2012).

In addition, Cohen's *d* was calculated to determine the effect size of the holistic practice on each category. Unlike t-tests that determine the difference from a statistical

⁴ Although data collected from direct observation and daily record of assignment submission are also quantitative, the analyses should be coherent with time-series design (section 3.6.3) as the individual variables were measured repeatedly over points of time.

angle, the test of effect size quantifies the strength of the difference between two variables to inform the difference in a practical sense (Creswell, 2012). The test is recommended in psychological or educational research that contains intervention (Horner, Swaminathan, Sugai, & Smolkowski, 2012).

3.7.2.2 The TRF-CV

The t-score of each category on individual students was created by using the scoring profiles purchased of Chinese boys or girls from the distributor of ASEBA. Descriptive analysis was used to compare the difference of each of the categories between pre- and post-implementation on the four individual students.

3.7.2.3 The QSL-CV

The raw scores under a subscale were summed up to calculate the score for the category on individual students. All the scores of a category were then summed up and divided by the total number of valid respondents to calculate the mean score of a category on the basis of the class. An independent-samples t-test was applied to determine the differences of each subscale between the two stages. Cohen's d was calculated to examine the effect size of the holistic practice on each subscale.

3.7.2.4 The TES-CV

In order to keep positive connotation, the negatively worded items were reverse scored. For example, if the response to the item 'A teacher cannot change every student into good student' was 'strongly disagree' (1 point), the item would be changed to 'A teacher can change every student into good student' and the result would be changed to 'strongly agree' (6 point).

The score of the subscale General Teaching Efficacy was calculated by averaging the total scores of ten relevant items. The score of the subscale Personal Teaching Efficacy was calculated by averaging the total scores of 17 relevant items. The total score was obtained by averaging the scores of the subscale General Teaching Efficacy and Personal Teaching Efficacy. The percentage of change was calculated by

subtracting the score of post-implementation from the score at pre-implementation, dividing the result by the score at pre-implementation, and multiplying that result by 100, as shown:

$$\frac{(\text{Score}_{\text{post}} - \text{Score}_{\text{pre}})}{\text{Score}_{\text{pre}}} \times 100 = \text{percentage of change}$$

3.7.2.5 Record of treatment fidelity

The percentage occurrences of individual and total strategies were calculated respectively. The percentage occurrence of a specific strategy was calculated by dividing the total number of “In place” and “Partially in place” by the total number of observations of the strategy and multiplied by 100, as shown:

$$\frac{(\text{Number}_{\text{In place}} + \text{Number}_{\text{Partially in place}})}{\text{Total number of observation}} \times 100 = \text{percentage occurrence of one strategy}$$

The result is unique for each of the strategies. The percentage occurrence of total strategies was calculated by dividing the total number of “In place” and “Partially in place” by the total number of “In place”, “Partially in place”, “Not in place”, and “Not required” in an observation and multiplied by 100, as below. As a result, a range of values was acquired to indicate the outcome.

$$\frac{(\text{Total number}_{\text{In place}} + \text{Total number}_{\text{Partially in place}})}{(\text{Total number}_{\text{In place}} + \text{Total number}_{\text{Partially in place}} + \text{Total number}_{\text{Not in place}} + \text{Total number}_{\text{Not necessarily occur}})} \times 100 = \text{percentage occurrence of total strategies}$$

The percentage compliances of individual and total strategies were also calculated respectively. The percentage compliance of a specific strategy was calculated by dividing the total number of “In place” by the total number of observation of the strategy and multiplied by 100. The result is unique for each of the strategies. The percentage compliance of total strategies was calculated by dividing the number of “In place” by the total number of “In place”, “Partially in place”, “Not in place”, and “Not necessarily occur” in an observation and multiplying by 100. A range of values was

acquired to indicate the outcome.

3.7.2.6 Record of achievement exams

The record of achievement exams contained exam results of three academic subjects, namely, Chinese Literacy, Math, and English as a Foreign Language. These results were numbers ranging from 0 to 100. The results were analysed at the class and individual student levels, respectively.

At the class level, for the purpose of investigating the effect of the holistic practice, the exam results at the beginning (Week 1) and end (Week 20) of the semester were analysed. Having collected the raw scores, the Z-scores of each student in the class were calculated on the basis of the population of the Grade Five (N=186), to normalise the distribution. The Z-scores were then plotted into six scales, distributing from one, two, or more than two standard deviations above or below the mean value (0). The three scales above the mean suggested positive outcomes, and the higher the scores the more positive (Neuman, 2010). The three scales below the mean suggested negative outcomes, and the lower the scores the more negative. The distributions of the six scales for each academic subject were graphed in a pie chart. A paired-samples t-test was calculated to examine the difference of Z-scores in pairs between the two stages, for each subject. Similarly, Cohen's d was calculated to determine the effect size of the holistic practice.

At the individual students' level, the exam results at three points of time (early, middle, and end of the semester) were analysed to display the students' progress. The Z-scores for each subject were calculated in the data analysis for the class (see above). The percentile rank of the Z-score was calculated on the basis of Grade Five (N=186) to determine the location of an individual's Z-score in comparison with other scores in the distribution of the entity of scores (Creswell, 2012). For example, the 60th percentile rank means that 60% of the students in Grade Five have scores at or below the participant, and 40% of the students in Grade Five have scores above this participant.

3.7.3 Time-series analysis

Time-series analysis was used on the data collected from repeated measurement of a single variable or a few variables over time in a chronological sequence (Swanborn, 2010). The main advantage is that it displays changes of the variable and clearly demonstrates its trend. This further helps the researcher predict the pattern of a targeted behaviour or event. Thus, the method is commonly used for data analysis in experimental ABA and PBS research, in particular, the single-subject design (Alberto & Troutman, 2009; Kratochwill, 1978).

In the present study, two sources of data were analysed by using the method. Before the analysis, a list of codes was created for allocating certain numbers to variables. The Microsoft Excel for Mac 2011 was used as the program for documenting, descriptive analysis and outputting data. The Effect Size Calculators developed by University of Colorado (Becker, 2000) were used to calculate Cohen's *d*. Descriptive analysis was applied to indicate general tendencies, a range of variable, or comparison of a variable between the pre- and post-implementation stages. The specific procedure for analysing each type of resource is described in the following sections.

3.7.3.1 Direct observation of students' behaviour

Three targeted behaviours, namely, off-task behaviour, inappropriate talking, and on-task behaviour, were analysed in the form. The procedure started from transformation of raw data collected in an interval to percentage of occurrence. In specific, the number of occurrences was divided by the total number of responses and then multiplied by 100, as shown:

$$\frac{\text{Number of occurrences}}{\text{Total number of responses}} \times 100 = \text{percentage of occurrence}$$

The percentages of occurrence were graphed to illustrate the trend that helped to evaluate changes of a targeted behaviour across the practice. Visual inspection of the trend, including an inspection of the immediate effect, changes in the trend, magnitude of changes and consistency of the pattern, is a common way to determine the pattern in

a single-subject design (Horner et al., 2005a).

In addition, Cohen's d was calculated to determine the effect size of first (the implementation of primary support), second (the implementation of primary and secondary supports), and third (the implementation of primary, secondary, and tertiary supports) intervention phases for the class. In addition, the effect sizes of two sub-phases of the secondary support, namely, CI/CO with 60% criterion and CI/CO with 70% criterion, were calculated for Student H, W, and S. The effect sizes of the CI/CO with 60% criterion and the individualised support was calculated for Student G. The measurement of effect size is especially recommended in single-case research (Parker & Hagan-Burke, 2007; Van den Noortgate & Onghena, 2003). Horner, et al. (2012) emphasised that effect size enhanced the potential of the use of single case research because the assessments "reflect the unique and combined results from changes in the level, trend, variability and overlap of data pattern across phases" (p. 284). For this case, it informed the changes of the targeted behaviours from the baseline to adjacent intervention phases.

3.7.3.2 Daily record of assignment submission

The record was analysed at the class and individual student levels respectively. To calculate the percentage of completion for a single assignment on the basis of the class, the total number of complete assignments was divided by the class size and multiplied by 100. The weekly completion percentage of the class was then calculated by averaging all the completion percentages of single assignments in the week. Cohen's d was calculated to determine the effect size of first (the implementation of primary support), second (the implementation of primary and secondary supports), and third (the implementation of primary, secondary, and tertiary supports) intervention phases.

To calculate the percentage of assignment completion on the individual students, the number of completions by the student in a week was divided by the total number of assignments in the same week and multiplied by 100. Cohen's d was also calculated to determine the effect size of the three intervention phases for each of the students.

3.8 Quality of the study

The case study, as well as other social science studies, needs to ensure the quality of study by addressing issues of validity and reliability (Creswell, 2012; Merriam, 1988; Scholz & Tietje, 2002). The trustworthiness of data collection, benefits of the outcomes, and power of the implications of a case study are enhanced if the study has shown good quality. In testing the quality of a case study, Yin (2009) highlighted four criteria, namely, construct validity, internal validity, external validity and reliability. The researcher further provided strategies for enhancing the quality (see Figure 4.4). The present study followed Yin's criteria and adopted a number of the strategies (e.g., maintaining a chain of evidence) to ensure its quality.

TESTS	Case Study Tactic	Phase of research in which tactic occurs
Construct validity	<ul style="list-style-type: none"> ◆ use multiple sources of evidence ◆ establish chain of evidence ◆ have key informants review draft case study report 	data collection data collection composition
Internal validity	<ul style="list-style-type: none"> ◆ do pattern matching ◆ do explanation building ◆ address rival explanations ◆ use logic models 	data analysis data analysis data analysis data analysis
External validity	<ul style="list-style-type: none"> ◆ use theory in single-case studies ◆ use replication logic in multiple-case studies 	research design research design
Reliability	<ul style="list-style-type: none"> ◆ use case study protocol ◆ develop case study database 	data collection data collection

Figure 3.5: Case Study Tactics for Four Design Tests (Yin, 2009, p. 41)

Construct validity means that a particular construct is measured correctly (Creswell, 2012; Cronbach & Meehl, 1955). A main threat to the criterion is the over-reliance on a single source of data. Subjective judgment may be made when there is not other evidence to confirm the finding. For this reason, it is suggested that multiple sources of data are used to provide corroborating evidence and allow triangulation (Creswell, 2007; Johnson & Turner, 2003; Merriam, 1988; Patton, 1990). In the present study, multiple sources of data that consisted of quantitative and qualitative data and collected from varied groups of stakeholders were collected and analysed.

Another strategy used for construct validity is maintaining a chain of evidence.

The strategy allows external auditors to trace the process from the starting point (researcher questions) to the ending point (the conclusion) or vice versa. By following the chain, external auditors can examine the accuracy of the development of inquiry (Creswell, 2007; Merriam, 1988). In the thesis, the chain of evidence was established through the following process (see Figure 4.5):

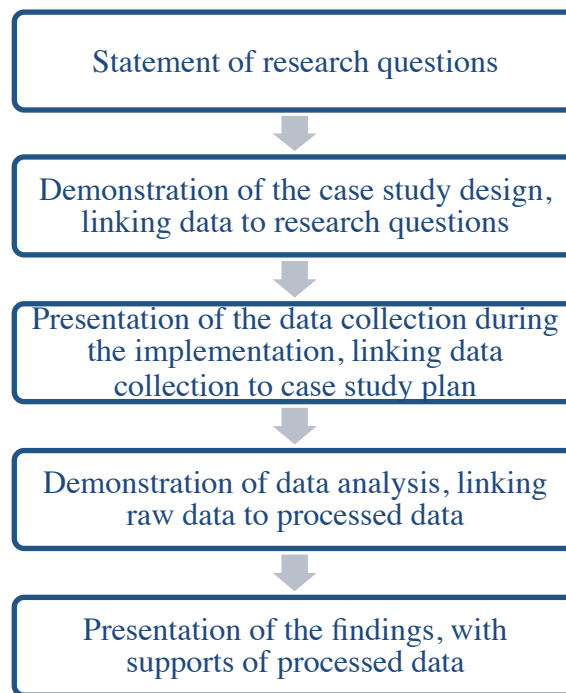


Figure 3.6: The chain of evidence in the thesis

Internal validity refers to the extent to which the causal relationship between the dependent variable and independent variable is strengthened (Dunbar, 2005; Neuman, 2010). It is an important criterion to test the causal link between the implementation and the targeted behaviours in the present study. For this purpose, the dependent variables pattern was used to examine whether all presumed dependent variables had been found whereas the alternative dependent variables had not been found (Yin, 2009).

External validity refers to the extent to which a study can be generalised (Dunbar, 2005; Neuman, 2010). Building the inquiry on theoretical propositions is the main strategy to enhance the external validity of a single case study (Yin, 2009). The present study embraced the two theoretical propositions. First, the SWPBS approach aims to improve students' behaviours and academic performance, and eventually the quality of life. Secondly, the approach benefits teachers' work and well-being (see

Chapter Two for details). Accordingly, the research was developed based upon the proposition, starting from proposal of the research questions (see Chapter One), research design (see previous sections of this chapter), data collection and analysis (see Chapters Four and Five), and finally the interpretation of the findings (see Chapter Six).

Reliability refers to the extent to which the findings of a case study can be replicated (Merriam, 1988; Scholz & Tietje, 2002). It can be enhanced by using case study protocol and creating case study database (see Figure 3.5). In the present study, explicit data collection and analysis are presented to enable an external auditor to replicate the study. In particular, this chapter illustrates the structure of the case design in relation to the research questions, the process for approaching the participating school, and the rationale and procedure of data collection and analysis. The findings of the study are presented clearly and discussed explicitly in the next two chapters. Replication can be made by carefully reading and following the details.

In summary, the present study was underpinned by the theoretical propositions. It was implemented in accordance with the research protocol step by step. Rich and diverse data were collected to allow triangulation. Pattern match was used to affirm the connections between the independent variable and the dependent variables. Finally, the study is presented in a manner that an external auditor can trace the chain of evidence from either ending points of the study. These enable external readers to replicate the study.

3.9 The role of the researcher

A case study researcher is expected to take varied roles such as trainer, facilitator, recorder, and observer. To accomplish a complexity of tasks, a researcher needs to be prepared with sufficient knowledge of the program and good sense of contexts, as well as appropriate interactions with the participants (Abma & Widdershoven, 2011; Stake, 1995). In this study, the researcher was not only the principal investigator, but also took the role of trainer.

3.9.1 Preparing the self

Prior to undertaking the study, the researcher accomplished a number of tasks to prepare herself to deal with all kinds of situations. The research-training subjects and workshops offered by the Faculty of Education and the Learning Centre from the University of Wollongong helped the researcher examine in detail the main approaches in educational research, and mastering strategies and skills that are associated with research design. A small project, which is a part of the training package, provided an opportunity for the researcher to practise strategies and approaches learnt from the training program. In order to prepare the researcher to be more competent in the evaluation and practice of SWPBS, she consulted experts who specialise in PBS. The researcher also consulted a specialist who was a supervisor and trainer of the PBL in school communities in the Illawarra, NSW for acquiring the updated practice information. With support of the specialist, the researcher visited a primary school that had the PBL in place for two years. During the visit, she was able to observe the practice in the classroom, talk to the teachers, and share with their experiences. These supports were important for implementation of the current study.

3.9.2 The researcher as observer

One of the key roles of the researcher in the study is as an observer. During participant observation, the researcher was aware that her subjectivity could affect the data collection. Although this is a critical weakness of the method, one way to minimise it is tape-recording the meetings so that data can be reported with scrutiny (Goetz & LeCompte, 1984).

During direct observation, the researcher and inter-rater kept focused on the targeted behaviours and were close-minded. Since all the observations were carried out in the classroom, minimising the interference with the students and teachers is a major concern. With the collaboration of the homeroom teacher, the researcher rehearsed the observation in the classroom until all the students and teachers felt comfortable and accustomed to the researcher's role as an observer.

3.9.3 The researcher as trainer

Before the implementation, the researcher provided a training program for the teachers. The training consisted of three sessions (two hours per session), with each session focused on different topics. Although CWPBS was a new approach to the teachers, some of the strategies were not uncommon to them. By the end of training, the teachers accepted the framework and underpinning theories.

During the implementation, the researcher encouraged the teachers to design interventions based on their teaching experiences and understanding of the participating class. The researcher was fully aware that the case was natural only if the teachers developed and implemented their “own” interventions based upon their “own” knowledge of the approach and the class. When an intervention plan was developed, the researcher discussed it and shared her opinions with the teacher. More importantly, the researcher always left the decision-making to the teachers. The researcher encouraged the teachers to reflect their thoughts and feelings when the implementation was ongoing. Some reflections were made formally on the regular PBS meetings, whereas others were made informally through day-to-day interactions. Such collaboration between the researcher and teachers carried on throughout the entire practice.

3.10 Conclusion

This study adopted embedded single case study design, which allowed an in-depth investigation of the multiple facets of CWPBS implementation in the real life context. The holistic case study involved two units of analysis, which allowed understanding students’ outcomes at the class and individual levels. For the holistic case, data were collected from the class of 48 students in Grade Five and from three teachers. For the two units of analysis, data were collected from the group of three students who received the secondary supports and one student who received the tertiary support, respectively. The teachers’ feedback about these individual students was also collected. The other research focus was the teachers’ outcomes associated with the implementation. As an evaluation of a school-based program, it is not only important to

examine the outcomes of the students who received the service, but also to investigate the behaviour, emotion, and attitude of the teachers who delivered the service.

Multiple sources of data, including observations of students' and teachers' behaviours, participant observations of PBS meetings, interviews with the teachers, review of school records, and questionnaires from students, teachers, and parents, were collected. The qualitative data were analysed through a procedure of memoing, describing, classifying and interpreting. The emerged themes were congruent with the research questions and concepts and findings form the body of literature. The analysis of quantitative data was diverse and employed descriptive and inferential statistics, which sought to explain each source of data properly. Verification procedures were used throughout the study to assure the validity and reliability of the study, as well as to enable external readers to duplicate the study or assess the findings themselves.

The subsequent chapter will report the results of the data analysis concerned with students' behaviour, academic performance, and senses of quality of school life. The chapter presents the result on the basis of the class that received the entire practice, the group that received the secondary support, and the individual student who received the tertiary support.

CHAPTER FOUR RESULTS: STUDENT OUTCOMES

4.1 Introduction

This chapter presents the results of the analysis of student outcomes that are associated with the CWPBS practice. The data are both qualitative and quantitative in nature, reflecting the purpose of the research design. Given the complexity of the research design, the results are presented in three parts, that is, the holistic case and two embedded units of analysis. The results are firstly presented on the class of 48 students that received the entire practice. The behavioural performances, academic achievements, and satisfaction of school life of the class within and/or across implementing phases are examined in a variety of analyses. These include time-series analysis of targeted behaviours, examination of the statistical difference of a variable between the baseline and intervention stages, calculation of the effect size of different intervention phases, comparison of standardised test scores between the beginning and end of the semester, and interpretation of the teachers' feedback on the class's behavioural and academic performances.

Then the results from the group of three students that received the Check-in/Check-out system are examined. Finally, the results are presented on the student who received individualised support. Unlike the data analysis of the holistic case, the results for the group and student are presented individually. The behavioural and academic performances of each of the students are analysed and discussed. These include time-series analysis of expected behaviour, calculation of the effect size of the interventions, comparison of standardised test scores and percentile ranks for the beginning, middle and end of the semester, and interpretation of the teachers' reflection on the students' behavioural and academic performance.

4.2 Relevance to the study

This chapter is concerned with three research questions:

Question 1: What are the behavioural outcomes associated with the

implementation of CWPBS?

Question 2: What are the academic outcomes associated with the implementation of CWPBS?

Question 3: How have students' perceptions of quality of school life changed in association with the implementation of CWPBS?

Question 1 was divided into two sub-questions:

- a. What are the behavioural outcomes of the class?
- b. What are the behavioural outcomes of the students with problem behaviour?

Question 2 was also divided into two sub-questions:

- a. What are the academic outcomes of the class?
- b. What are the academic outcomes of the students with problem behaviour?

Eight sources of data were analysed to address these questions (see Table 4.1). The specific analysis procedures and results are presented below for each of the data sources.

Table 4.1: Data of Resources and Relevant Research Questions

Data of Resources	Research Question(s) Addressed
Direct observation of targeted behaviour	Question 1-a, Question 1-b
Teacher rating of student problem behaviour (questionnaire)	Question 1-b
Parent rating of student problem behaviour (questionnaire)	Question 1-a
Teacher reflection on student problem behaviour (interview)	Question 1-a, Question 1-b
Teacher reflection on student improvement during the implementation (participation observation)	Question 1-a, Question 1-b, Question 2-a, Question 2-b
Assignment completion record (document)	Question 1-a, Question 1-b
School achievement test result (document)	Question 2-a, Question 2-b
Student rating of quality of school life (questionnaire)	Question 3

4.3 The class

4.3.1 Targeted behaviours

The results of percentage of intervals engaged in the targeted behaviours were graphed to demonstrate the trend (see Figure 4.1). The mean percentage of targeted behaviour during the baseline and three consecutive intervention phases, namely, the primary support (the first phase), integration of the primary and secondary supports (the second phase), and integration of the three tiers of supports (the third phase), were displayed in Table 4.2. Cohen's d was calculated to determine the effect size of each intervention phase (see Table 4.2).

The line that represented off-task behaviour showed a decreasing trajectory. During the baseline, the level of off-task behaviour was consistently high (mean = 36%). When the primary support was introduced, the overall trend showed a larger decrease and the level of the problem behaviour (mean = 25%) reduced. When the secondary support was layered on to the class-wide support, the trend continued decreasing and the level of the problem behaviour (mean = 10%) was lower than in the earlier phase. When the tertiary support was layered on to the secondary support, the trend further reduced and maintained at a low level (mean = 4%) for the remainder of the sessions. In summary, the off-task behaviour reduced greatly from the implementation of the primary support, and continued to reduce after the other two supports had been integrated. During the last seven sessions, instances of the problem behaviour remained at a low level. As can be seen in Table 4.2, the effect size for each intervention phase further supported this finding.

Table 4.2, shows that Cohen's d for the primary support indicated a large effect ($d > .8$). The value means that the average percentage of intervals engaged in off-task behaviour at the baseline is over one standard deviation higher than the behaviour in the primary support (Creswell, 2012). In addition, according to Cohen (1988, p. 22), $d = 1.2$ indicates that a 62.2% non-overlap occurs between the distribution of observations of off-task behaviour in the baseline and the distribution in the primary support. A larger

effect size was found for the implementation of the integration of the primary and secondary supports, meaning that the average problem behaviour was almost four standard deviations lower than in the baseline. Accordingly, $d \geq 3.6$ means that at least a 96.3% non-overlap occurs between the two distributions. The largest effect size was found for the implementation of the primary, secondary, and tertiary supports, meaning that the average problem behaviour was over ten standard deviations less than the baseline. Accordingly, $d \geq 4.0$ means that at least a 97.7% non-overlap occurs between the two distributions (Cohen, 1988, p. 22).

The trend that represents inappropriate talking demonstrates consistent decrease in line with the continuum of supports. Moreover, the level of problem behaviour remained at a low level (mean percentage < 5%) after the secondary support had been introduced. As shown in Table 4.2, a large effect was found for the primary support. The average inappropriate talking was three standard deviations lower than that in the baseline. In addition, a non-overlap of 92.8% was found between the two distributions. The effect size was larger after the secondary support had been layered onto the primary support. The average behaviour at that phase was about five standard deviations lower than that in the baseline. The largest effect size was found at the integration of the three tiers of support. The average behaviour at this phase was about six standard deviations lower than that in the baseline. In addition, larger non-overlaps (> 97.7%) were found between the occurrence of the behaviour at the baseline and the last intervention phase.

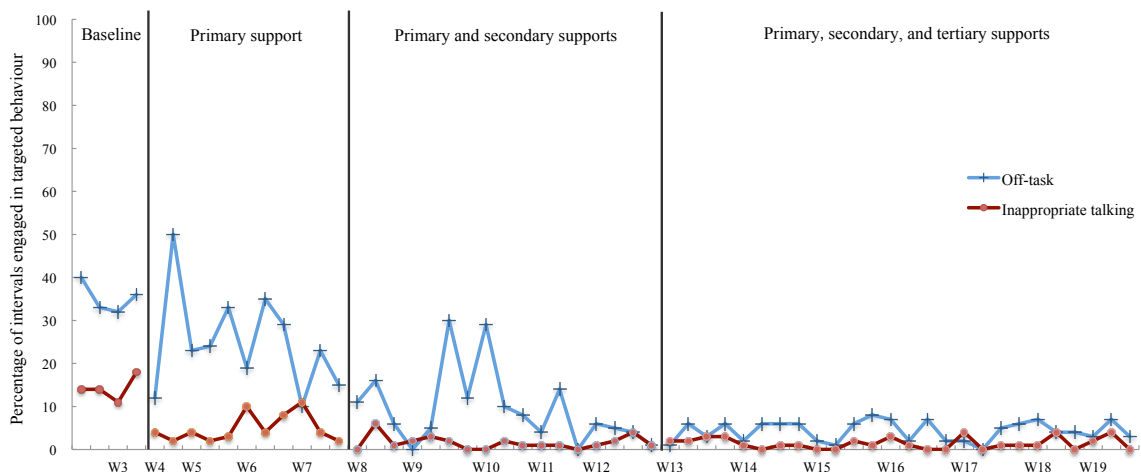


Figure 4.1: Percentage of Intervals Engaged in Targeted Behaviour by the Class Across

Phases

Table 4.2: Mean Percentage and Effect Size of Targeted Behaviour Across Phases

Targeted behaviour	Mean Percentage (SD)				Cohen's <i>d</i>		
	BL	T1	T2	T3	1	2	3
Off-task	36 (.04)	25 (.12)	10 (.09)	4 (.02)	1.2	3.7	10.1
Inappropriate talking	14 (.03)	5 (.03)	2 (.02)	1 (.01)	3.0	4.7	5.8

Note. BL = Baseline. T1 = Implementation of the primary support. T2 = Implementation of the primary and secondary supports. T3 = Implementation of the primary, secondary, and tertiary supports. 1= Effect size of T1. 2 = Effect size of T2. 3 = Effect size of T3.

4.3.2 Assignment completion

The results of assignment completion were graphed to demonstrate the trend (see Figure 4.2). The mean percentages of assignment completion during the baseline and three implementation phases were calculated. The value was 53% (SD = .10, range = 39-66%) for the baseline, 78% (SD = .13, range = 35-100%) for the first intervention phase, 78% (SD = .11, range = 62-100%) for the second phase, and 81% (SD = .13, range = 58-100%) for the third phase. This demonstrated an increasing trend across the implementation. The effect size for each intervention phase was also calculated. Cohen's *d* was 2.2, 2.3, and 2.4 for the first, second, and third implementation phases respectively, indicating that effect sizes were sustained and increased slightly as the implementation progressed. According to Cohen (1988, p. 22), *d* = 2.2 and 2.4 mean that a 81.1% and 87.0% non-overlap occurred between the two distributions.

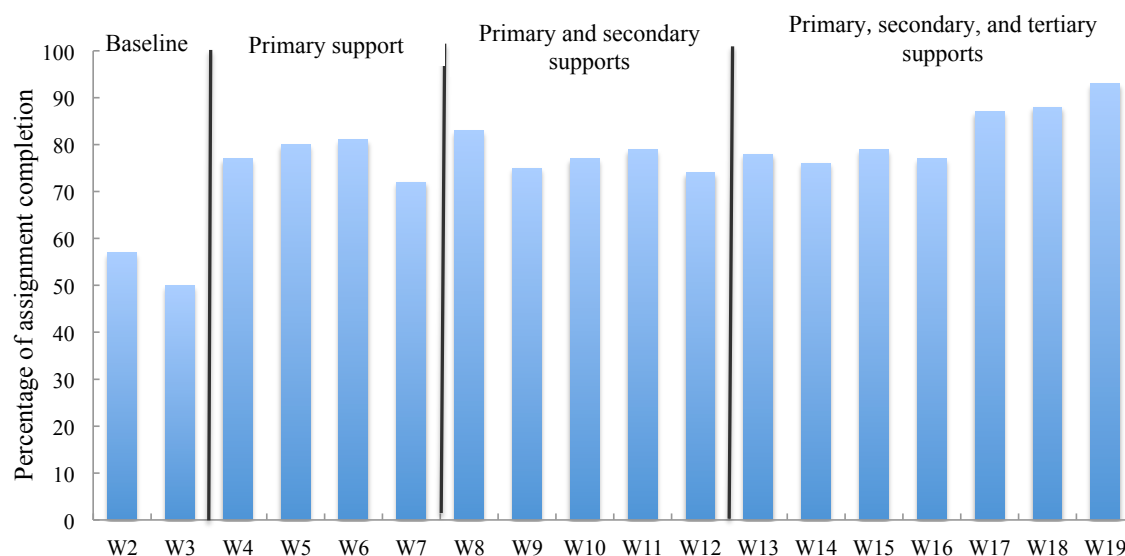


Figure 4.2: Mean Percentage of Assignment Completion Across Implementing Phases

4.3.3 Teacher perception of problem behaviour

In the interviews before the implementation, the teachers reported 15 problem behaviours that had influenced their classroom management. According to teachers' descriptions, five categories of problem behaviour were identified (see Table 4.3). Inappropriate talking, off-task behaviours, and assignment incompleteness were common categories of problem behaviour that occurred in each teacher's instructions. Moreover, assignment incompleteness was considered the most troublesome. In addition, Ms. Zhang and Ms. Chen reported a large proportion of the students who were not interested in learning. They believed that the problem was also difficult to manage. In addition to behavioural problems that were associated with academic activities, Ms. Zhang reported a large proportion of the students who did not follow teacher direction in non-academic activities such as cleaning the classroom and waiting turns.

In the interviews after termination of the practice, the teachers reported eight problem behaviours. All the problem behaviours had been reported in previous interviews and were grouped into four categories (see Table 4.3). The category 'Not interested in learning' was not identified at this stage. None of the problem behaviours relating to this category were reported by the three teachers at this stage. While inappropriate talking, off-task, and assignment incompleteness had been reported

influencing each teacher's management in previous interviews, they were not mentioned by all the teachers after the practice. The findings suggest that problem behaviours became minor or were eliminated in some contexts so some of the teachers did not view them as interfering with classroom management. Estimated rates of the remaining categories were much smaller than they had been in the previous interviews. In particular, none of the rates of the three categories exceeded 20%. Before the practice, some incident rates were as high as 80%.

Table 4.3: Problem Behaviour and the Estimated Prevalence Reported by the Teachers

Category	Example	Estimated prevalence rate (%) by					
		Ms. Zhang		Ms. Ji		Ms. Chen	
		BL	T4	BL	T4	BL	T4
Inappropriate talking	Talk-out, whispered with others	15-80	5	50	NR	60	10
Off-task	Day-dreaming, played with things	15	10	60	20	20	NR
Assignment incompleteness	Procrastinate, put off doing assignment	20-30	NR	45-50	20	50-60	10
Not interested in learning	Complained of too much academic work, withdrawn	80	NR	NR	NR	40	NR
Not follow teacher direction (non-academic)	Avoided cleaning classroom, refused waiting turns	70	30	NR	NR	NR	NR

Note. NR = The problem behaviour was not referred to by the teacher. BL = Baseline. T4 = Post-intervention.

4.3.4 Teachers' perception of improvement during the implementation

Teachers' feedback on perceived outcomes were collected during the third, fourth, and fifth PBS meetings. In each meeting, the teachers talked about the improvement that they perceived over the duration of the intervention. The comments were then categorised into themes based on individual teachers (see Table 4.4).

4.3.4.1 The third meeting

The initial four weeks (from Week 4 to Week 7) were for implementing the primary support, during which all the teachers had perceived students' improvements. In particular, active participation in class activities (themed as 'In-class participation') was the most remarkable improvement. In-class activity was an important part of the lesson for the students and teachers. The teachers designed varied activities, including ask and answer, role-plays, and demonstration tasks in front of the class, for students to acquire knowledge in class instruction. In turn, students' performances in the activities are evidence of progressive evaluation and decision making by the teachers. Before the implementation, all the teachers reported the class's lack of motivation in learning. Problems included being withdrawn, avoiding taking part in academic tasks, and being off-task (see also section 4.3.3). When the primary support was in place, the class started showing more interest in academic-related tasks and participating more actively. Ms. Chen remarked, 'Having used the primary support, I feel that the class becomes voluntary in answering questions. The students are active in my class now.' 'The students have desires of show-off', added Ms. Zhang. Ms. Ji chose the class for her open lecture and explained that 'although the other classes have better academic outcomes than the intervention class, I prefer this class because the students are more active and willing to try-out.'

In addition to active participation, Ms. Zhang and Ms. Chen reported improved quiz results in the subjects, Chinese literacy and English as the second language. Specifically, Ms. Zhang observed that the class had improved performance in high levels of language usage such as reading comprehension and writing. Ms. Chen only

found the improved outcomes in basic language usage such as word memory. Both teachers agreed that the students' full participation in class increased the effectiveness of knowledge acquisition and application. Given that Chinese is their first language, the students have sufficient opportunities to practise the language in and after class. This might be the reason for more satisfying outcomes in Chinese literacy, as perceived by the teacher. Although such an improvement was not observed in Math, Ms. Ji expressed confidence in future success.

In spite of the above improvements, Ms. Zhang and Ms. Ji felt that the primary support worked less efficaciously on the troublesome students. These students had repeated academic failures and manifested problem behaviour for at least one semester. Ms. Ji remarked, "While the other students were actively engaged in the individual task or group work, these students took the chance to daydream, play with toys, or interfere with the desk-mate." "And they still do not know how to do assignments, or try every way to avoid the work," stated Ms. Zhang. The teachers both advised that the students might need more specialised interventions.

4.3.4.2 The fourth meeting

From Week 8, the secondary support was layered on the primary support. The teachers continued reporting improvements. Behaviours that were related to the category 'In-class participation' were again found in each teacher's feedback. The teachers agreed that the class became more motivated in learning. During instruction, when students completed a task without difficulty, some of them would ask the teacher to assign more challenging tasks. After class, some students had organised study groups autonomously.

In regards to academic outcomes, all the teachers had perceived improvements during these sessions. Ms. Zhang sensed increased accuracy of academic tasks in the subject Chinese literacy, including in and after class assignments, answers to teachers' question, and quizzes. Furthermore, Ms. Ji reported improvements such as more students had passed the classroom quizzes and increased accuracy in arithmetic. Ms Ji

did not report the improvement in the previous meeting. Comparing the teachers' feedback for the first to fourth sessions, the data suggested a comprehensive improvement.

Another category of improvement highlighted in this meeting was social relationships. In particular, Ms. Zhang observed that students with above average academic performance would like to involve students with poor behaviour or academic performance in and after class activities. 'Not long ago, these good students,' the teacher remarked, 'did not care about those poor students and just wanted to be good themselves.' The other two teachers reported friendly teacher-student relationships. Ms. Ji commented, 'I feel both the class and I enjoyed motivated and happy class time.' Ms. Chen reflected that through close contact with the class in class breaks, she had come to know students much better than at the beginning of the semester.

4.3.4.3 The fifth meeting

From Week 13, the tertiary support was layered on the secondary support, which meant that the entire three-tiered support was being implemented. The teachers continued sensing the improvements that had been reported in previous sessions. In the meeting, Ms. Zhang and Ms. Ji expressed their contentment with the students' current performance. Ms. Ji was satisfied with most of the students, and felt that some of them could have even better achievements. In addition to comments on class performance, the teachers provided more feedback on the students who received the secondary or tertiary supports. Interpretations of the comments will be presented in the section on group and individual participants.

Table 4.4: Themes of Perceived Improvement by Teachers during the Implementation

	Week 4 – Week 7	Week 8 – Week 12	Week 13 – Week 16
Participant	(Collected in third meeting)	(Collected in fourth meeting)	(Collected in fifth meeting)

Ms. Zhang	<ul style="list-style-type: none"> • Acquisition of knowledge • Application of knowledge • In-class participation • Study motivation • Assignment completion • Quiz result 	<ul style="list-style-type: none"> • Acquisition of knowledge • Application of knowledge • Attention • In-class participation • Study motivation • Assignment accuracy • Student relationship 	<ul style="list-style-type: none"> • In-class participation • Study motivation • Assignment completion • Assignment accuracy • Quiz result • Student relationship
Ms. Ji	<ul style="list-style-type: none"> • Speaking voice • In-class participation • Teacher-student interaction 	<ul style="list-style-type: none"> • Active thinking • In-class participation • Quiz result • Teacher-student relationship 	<ul style="list-style-type: none"> • Active thinking • Study motivation • In-class participation • Student relationship
Ms. Chen	<ul style="list-style-type: none"> • In-class participation • Quiz result 	<ul style="list-style-type: none"> • In-class participation • Assignment completion • Teacher-student relationship • Quiz result 	<ul style="list-style-type: none"> • Classroom discipline • In-class participation • Assignment completion • Assignment accuracy • Quiz result

4.3.5 Parent rating of problem behaviour

The parents of the students in the class were invited to complete the CBCL-CV before and after the implementation. Forty-five and 44 questionnaires with valid answers were collected at the pre- and post-implementation stages, respectively. Among these respondents, one did not submit the questionnaire at the pre-implementation stage, and two did not submit the questionnaire at the post-implementation stage. Eventually,

43 paired questionnaires qualified for the paired-samples t-test. The average t-score of each category, paired-samples t-test result, and Cohen's *d* are displayed in Table 4.5.

Most of the mean scores (except the mean score of Somatic Complaints) were lower at the post-implementation stage than the pre-implementation stage. Social Problems, Thought Problems, Attention Problems, Delinquent Behaviour, Aggressive Behaviour, Externalising, and Total Problems were significantly lower at the post-implementation than the pre-implementation. Medium to large effect sizes were found for the Thought Problems and Delinquent Behaviour, indicating that a 43% and 38.2% non-overlap occurred between the distribution of scores at the post-implementation stage and the distribution of scores at the pre-implementation stage, respectively. Small to medium effect sizes ($.2 \leq d \leq .5$) were found for Social Problems, Attention Problems, Aggressive Behaviour, Externalising, and Total Problems, meaning that the non-overlap in the distributions of the two stages ranged from 14.7 to 33.0% for each of the categories.

Table 4.5: CBCL-CV Results for the Class at the Baseline and Post-Implementation

Category	BL		T4		<i>p</i>	Cohen's <i>d</i>
	M	SD	M	SD		
Withdrawn	54.31	7.32	53.00	5.58	.16	.20
Somatic Complaints	52.17	6.10	52.50	5.26	.75	-.06
Anxious/Depressed	53.48	5.48	53.02	5.34	.58	.09
Social Problem	58.12	11.80	54.33	12.74	.03	.31
Thought Problems	60.21	8.26	55.19	6.81	.00	.66
Attention Problems	60.81	10.61	58.19	10.10	.03	.25
Delinquent Behaviour	53.79	5.12	51.45	2.96	.01	.56
Aggressive Behaviour	52.79	4.56	51.26	3.11	.01	.39
Internalising	47.79	11.05	46.26	10.70	.25	.14
Externalising	47.98	9.34	44.95	7.93	.01	.35
Total Problems	49.81	9.13	46.31	9.14	.00	.38

Note. BL = to baseline. T4 = Post-intervention.

4.3.6 Student rating of school life

All the students completed the questionnaire with valid answers at both pre- and post-implementation stages. As shown by Table 4.6, all the subscales were more positive at the post-implementation than at the pre-implementation. Social Integration and Adventure were significantly higher at the post-implementation than the pre-implementation. A medium effect size ($d \geq .5$) was found for Social Integration and Adventure, meaning that at least a non-overlap of 33% occurred between the distributions of scores at the two stages for each of the subscales. Small to medium effect sizes ($.2 < d < .5$) were found for the other five subscales, meaning that the non-overlap in the distributions of the two stages ranged from 14.7 to 33.0% for each of the subscales.

Table 4.6: QSL-CV Results of the Class at the Baseline and Post-Intervention

Subscale	Baseline		T4		<i>p</i>	Cohen's <i>d</i>
	M	SD	M	SD		
General Satisfaction	3.01	.47	3.21	.52	.05	.40
Negative Affect	1.96	.55	1.76	.56	.08	-.36 ¹
Teacher-student Relations	3.11	.61	3.31	.57	.11	.33
Social Integration	2.88	.50	3.18	.52	.00	.60
Opportunity	3.56	.39	3.68	.38	.11	.33
Achievement	3.12	.68	3.28	.46	.18	.28
Adventure	2.76	.48	3.02	.55	.02	.50

Note. BL = Baseline. T4 = Post-intervention. ¹ = Negative effect size in subscale Negative affect refers to reduction of negative affects, indicating improvement of satisfaction of school life

4.3.7 School achievement exam result

The students in Grade Five were required to take part in school achievement exams for Chinese Literacy, Math, and English as a Foreign Language. The school managed the exams at the beginning (Week 1), middle (Week 8), and end (Week 20) of the semester. For the purpose of presenting outcomes of the holistic practice, the results at the beginning and end of the semester were analysed. The raw scores were calculated into Z-scores based on the population of Grade Five ($N = 186$). The proportions of the six scales for each academic subject at two stages were illustrated in Figure 4.3.

As shown by Figure 4.3, before the practice, 40% and 34% of the class was above the mean on the Chinese Literacy and English as a Foreign Language, respectively. However, 10% of the class were located in ≤ -2 standard deviation on the Chinese Literacy, suggesting the group had very low scores among all the students in Grade Five. The situation for Math was slightly more positive because 54% of the class was above the mean. However, 13% of the class were located in ≤ -2 standard deviation in the subject.

After the intervention, the percentage of positive scores increased by 21% and 20% in Chinese Literacy and English as a Foreign Language, respectively. Further, the proportion of the scale “ ≤ -2 standard deviations” slightly reduced by 4% on Chinese Literacy. The proportion of the scale “ -2 standard deviations” reduced by 14% on English as a Foreign Language. As for Math, although the percentage of positive scores slightly reduced by 4%, there were no students who fell into the scale “ ≤ -2 standard deviations”. This suggested that the students who used to have very low scores in the subject had made improvements.

The results of the paired-samples t-test and effect sizes between the pre- and post-implementation stages were in line with the above findings. Chinese Literacy ($p = .01$) and English as a Foreign Language ($p = .00$) were significantly higher at the post-implementation than the pre-implementation. Medium effect sizes ($2 < d < .5$) were found for Chinese Literacy ($d = .40$) and English as a Foreign Language ($d = .40$).

According to Cohen (1988), $d = .40$ suggest a 27.4% of non-overlap in the two distributions, respectively.

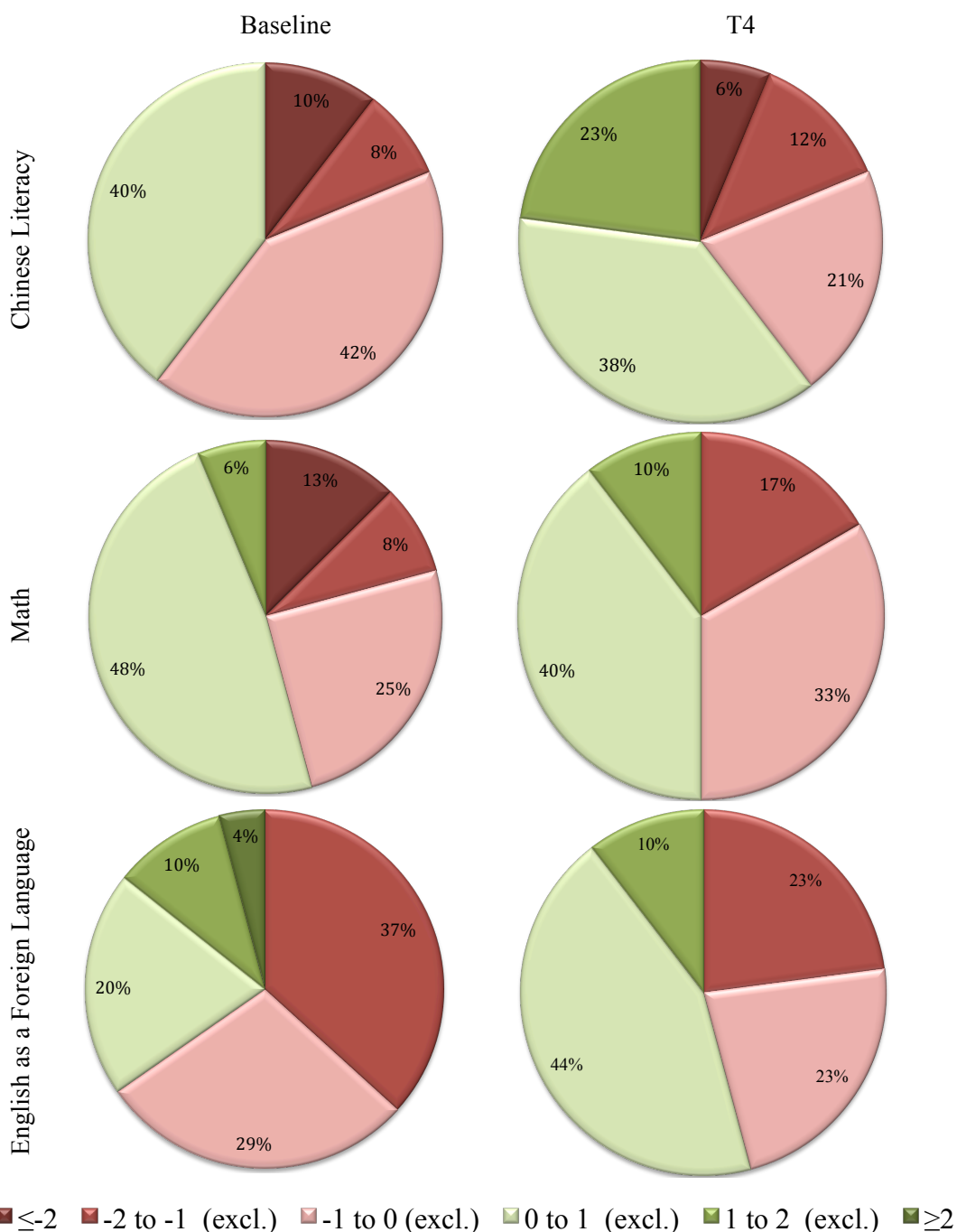


Figure 4.3: Percentage of Students in Standard Deviations for Each Subject Before and After the Intervention

4.4 The group

Four students received the secondary support that was layered onto the primary

support. The support employed the CI/CO (check-in and check-out) system that had been divided into two phases. The first phase was associated with the CI/CO 60% criterion and lasted for five weeks. The second phase was associated with the CI/CO 70% criterion and lasted for six weeks (for Student W) or seven weeks (for Student H and W). Students H, W, and S received the entire secondary support until the termination of the whole intervention.

4.4.1 Targeted behaviour

The percentage of intervals of engaged on-task behaviour was demonstrated in Figure 4.4. Descriptive statistics of mean percentage and effect sizes for different intervention phases on individual students are displayed in Table 4.7. Student G went on receiving the tertiary support after he had received the first phase of secondary support. Thus, the results of that student will be presented in Section 4.4.5.

Student H's on-task behaviour was variable and low (24%, 37%, and 57% for three observation points) during the primary support. When the CI/CO with 60% criterion was introduced, the mean level of on-task behaviour increased by 41%, compared with the implementation of the primary support. The line that represented on-task behaviour indicated an increasing trend. Cohen's *d* of this phase suggested a large effect, which further supported the finding. As illustrated by Figure 4.4, the student's on-task behaviour continued increasing after the criterion of CI/CO had upgraded to 70%. The mean level of the behaviour increased by 58% and 17%, compared with the implementation of the primary support and the CI/CO with 60% criterion, respectively. The line that represented on-task behaviour indicated that the student had exhibited the behaviour at a high level and could maintain it steadily. As shown by Table 4.7, the effect size of this phase also showed a larger effect than the value for the previous phase.

Student W's on-task behaviour maintained at a low level (25%, 26%, and 42% for three observation points) during the primary support. When the CI/CO with 60% criterion was introduced, the mean level of on-task behaviour increased by 46%,

compared with the implementation of the primary support. The line that represented on-task behaviour indicated a variable but increasing trend. As shown by Table 4.7, the effect size of this phase was large, which further supported the finding. When the CI/CO with 70% criterion was introduced, the student exhibited more on-task behaviour. The mean level of the behaviour increased by 55% and 9%, compared with the implementation of the primary support and the CI/CO with 60% criterion, respectively. The line that represented on-task behaviour indicated a higher and steadier trend than the first phase. Similarly, the effect size of this phase was larger. (see Table 4.7)

Student S exhibited an extremely low level (3%, 18%, 32%, and 33% for three observation points) of on-task behaviour before the secondary support. When the CI/CO with 60% criterion was introduced, the student immediately responded to it. The mean level of on-task behaviour increased by 64%, compared with the implementation of the primary support. As shown by Figure 4.4, the line that represented the behaviour remained in the interval of 70-100% throughout the implementation, suggesting a high and steady pattern of improvement. The effect size of this phase was large (see Table 4.7). The student maintained such a pattern after the CI/CO when 70% criterion was practiced. The mean level (94%) of on-task behaviour at this phase was high. It increased by 72% and 18%, compared with the implementation of the primary support and the CI/CO with 60% criterion, respectively. The line that represented on-task behaviour remained as high as the previous phase and was more stable, indicating an even better performance. The effect size of this phase was larger than the previous phase (see Table 4.7).

Table 4.7: Mean Percentage and Effect Size of On-task Behaviour by Individual Students Across Phases of Secondary Support

Student	Mean Percentage (SD)			Cohen's <i>d</i>	
	T1	CI/CO with 60% criterion	CI/CO with 70% criterion	1	2
H	39 (16.62)	80 (22.86)	97 (3.56)	2.05	4.83

W	31 (9.53)	77 (21.07)	86 (21.96)	2.81	3.25
S	22 (14.10)	86 (15.48)	94 (9.31)	4.32	6.03

Note. T1 = Implementation of the primary support. 1 = Effect size of CI/CO with 60% criterion.

2 = Effect size of CI/CO with 70% criterion.

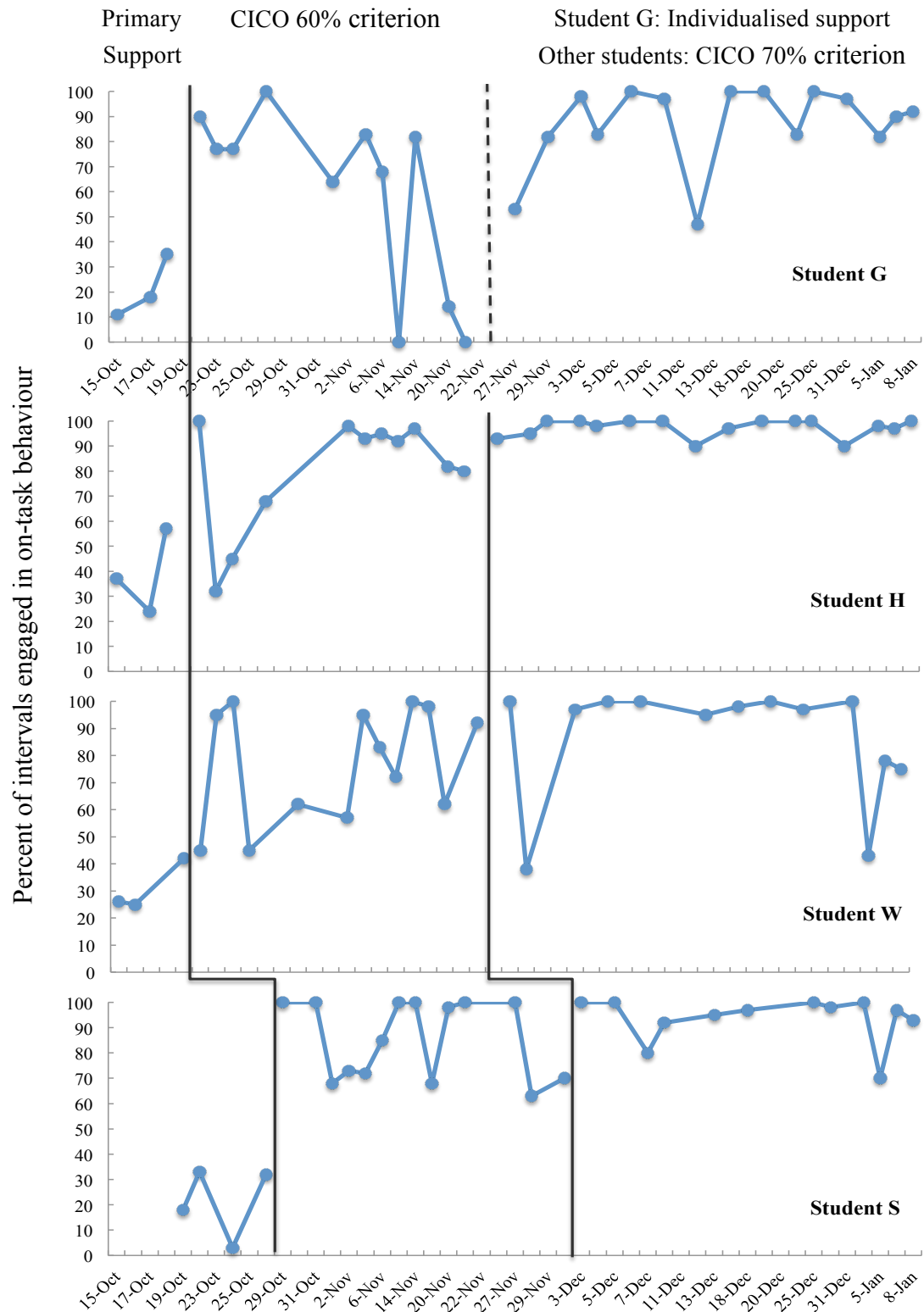


Figure 4.4: Percent of Intervals Engaged in On-task Behaviour of Individual Students

4.4.2 Assignment completion

The results of percentage of assignment completion for individual students were graphed to demonstrate the trend (see Figure 4.5). Descriptive statistics of mean

percentage and effect sizes for different intervention phases on individual students are displayed in Table 4.8. The result of Student G is discussed in the section 4.5.2.

As demonstrated by Figure 4.5, Student H had performed an extremely low level of assignment completion during the primary support. In particular, the student did not complete any assignments in Week 6. During the CI/CO with 60% criterion, the mean percentage increased slightly (by 11%), but the level was still low and variable. As shown by Table 4.8, Cohen's d of this phase suggested a medium effect. A larger increasing pattern was found for the phase of CI/CO with 70% criterion. The mean level of assignment completion increased by 49% and 38%, compared with the implementation of the primary support and the CI/CO with 60% criterion, respectively. The increasing trend was more clear and stable than the trend in the previous phase (see Figure 4.5). Cohen's d of this phase suggested a large effect (see Table 4.8), which further supported the finding.

As demonstrated by Figure 4.5, Student W had performed a low level of assignment completion before the secondary support. An increasing pattern was found for the phase of the CI/CO with 60% criterion. The value on each week of this phase was higher than the weeks of the previous phase. As shown by Table 4.8, the mean level increased by 17%, compared with the implementation of the primary support. A large effect size was found for this phase, which further supported the finding. A larger and more stable increasing pattern was found for the phase of the CI/CO with 70% criterion (see Figure 4.5). In particular, the student had 100% assignment completion in the last four weeks. The mean level of assignment completion increased by 44% and 26%, compared with the implementation of the primary support and the CI/CO with 60% criterion, respectively. Cohen's d of this phase suggested a larger effect (see Table 4.8), compared with the value for the CI/CO with 60% criterion.

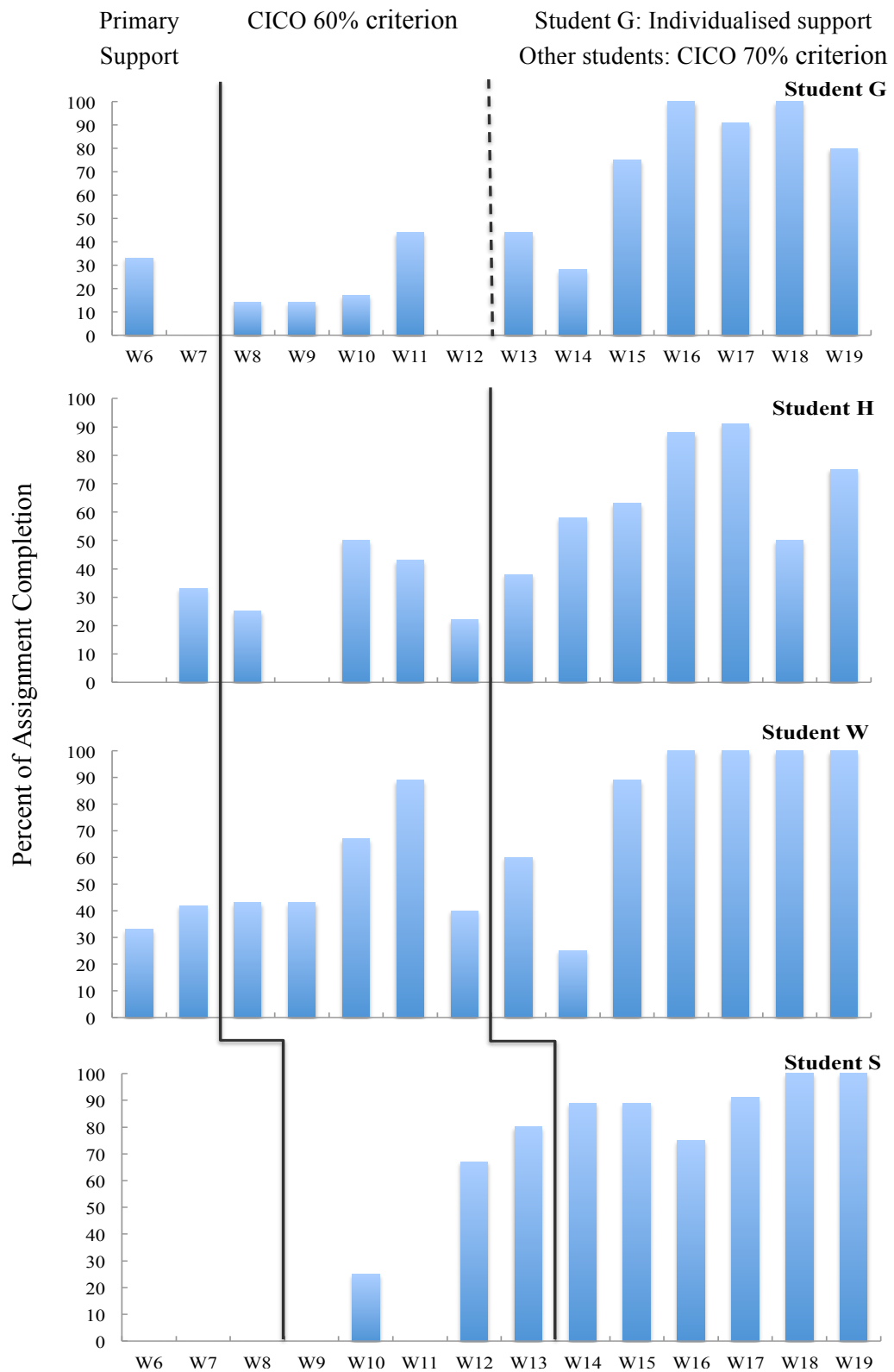
As demonstrated by Figure 4.5, Student S did not complete any assignments during the three weeks of the primary support. When the CI/CO with 60% criterion was introduced, the student started doing some assignments. Nonetheless, the increase

pattern was variable. In particular, the student did not complete one assignment in Week 9 and 11. In addition, the mean percentage ($M = 34\%$) of this phase suggested a low level of completion (see Table 4.8). In the CI/CO with 70% criterion, the student displayed a much better performance. The mean level of assignment completion was high and also remained in the interval of 75-100% (see Figure 4.5). In comparison with the implementation of the primary support and the CI/CO with 60% criterion, the value increased by 44% and 26%, respectively. Cohen's d of this phase further suggested a much larger effect (see Table 4.8), compared with the value for the CI/CO with 60% criterion.

Table 4.8: Mean Percentage and Effect Size of Assignment Completion by Individual Students Across Phases of Secondary Support

Student	Mean Percentage (SD)			Cohen's d	
	T1	CI/CO with 60% criterion	CI/CO with 70% criterion	1	2
H	17 (23.33)	28 (19.61)	66 (19.59)	0.53	2.30
W	38 (6.36)	56 (21.23)	82 (29.09)	1.21	2.11
S	0 (0.00)	34 (37.41)	91 (9.22)	1.30	13.90

Note. T1 = Implementation of the primary support. 1 = Effect size of CI/CO with 60% criterion. 2 = Effect size of CI/CO with 70% criterion.



W= School week.

Figure 4.5: Percent of Assignment Completion of Individual Students

4.4.3 Teachers' rating of problem behaviour

The teachers were invited to complete the TRF-CV the week before (T1) and after the secondary support (T4), respectively. Each of the students had been rated by the three teachers at both stages. Data analysis was managed for presenting individual results.

The results for Student H during the primary support and after the secondary support are shown in Table 4.9. The students had manifested a broad range of problem behaviours. The teachers were consistent in rating the categories manifested as serious problems. During the primary support, all the teachers allocated high scores on the Withdrawn, Anxious/Depressed, Social Problems, Thought Problems, Attention Problems, Internalising, and Total Problems. Most of the scores reached the borderline clinical or clinical ranges, except Social Problem on Ms. Chen's rating.

Table 4.9: TRF-CV Results (T-Scores) for Student H at Pre- and Post-Secondary Support

Category	Ms. Zhang		Ms. Ji		Ms. Chen	
	T1	T4	T1	T4	T1	T4
Withdrawn	89	85	85	85	85	60
Somatic Complaints	62	50	50	50	62	62
Anxious/Depressed	69	60	69	69	71	50
Social Problems	69	59	67	67	64	51
Thought Problems	82	75	70	72	75	70
Attention Problems	73	68	68	64	70	66
Delinquent Behaviour	62	50	50	57	57	57
Aggressive Behaviour	57	50	57	51	61	55
Internalising	73**	67**	73**	73**	74**	54
Externalising	59	42	55	53	61*	55
Total Problems	73**	67**	69**	69**	72**	60*

After the secondary support, most of the t-scores on the categories were lower.

In particular, all the scores on Ms. Zhang's ratings were lower than the previous ratings. As for the categories with high scores in the previous ratings, the Attention Problems scored lower on all the teachers' ratings. The Withdrawn, Anxious/Depressed, Social Problems, Thought problems, Internalising, and Total Problems scored lower on Ms. Zhang and Ms. Chen's ratings. Further, some categories downgraded at least one level, compared with the previous ratings. The Attention Problems downgraded to the normal range from the borderline clinical range on Ms. Ji and Ms. Chen's ratings, and to the borderline clinical range from the clinical range on Ms. Zhang's rating. The Anxious/Depressed downgraded to the normal range from the borderline clinical range on Ms. Zhang and Ms. Chen's ratings. The Withdrawn and Internalising downgraded to the normal range from the clinical range, and the Total Problems downgraded to the borderline clinical range from the clinical range on Ms. Chen's rating.

Student W (see Table 4.10) received high t-scores in a broad range of problem behaviours during the primary support. Nearly half of the categories fell into the clinical range, and another two fell into the borderline clinical range, on Ms. Zhang's rating. One and four categories fell into the clinical and borderline clinical ranges respectively, on Ms. Ji's rating. Two categories fell into the clinical and borderline clinical ranges respectively, on Ms. Chen's rating. In particular, the Attention Problems, Externalising, and Total Problems scored highly across the three teachers' ratings. After the secondary support, most of the t-scores were lower. In particular, the three categories that had been allocated high scores scored lower across the three teachers' ratings. There were no categories that fell into the clinical range across the teachers' ratings. Five and four categories were in the borderline clinical range on Ms. Zhang and Ms. Ji's ratings, respectively. All categories were at the normal level on Ms. Chen's rating.

Table 4.10: TRF-CV Results (T-Scores) for Student W at Pre- and Post-Secondary Support

Category	Ms. Zhang		Ms. Ji		Ms. Chen	
	T1	T4	T1	T4	T1	T4

Withdrawn	66	59	61	57	57	50
Somatic Complaints	50	50	61	50	50	61
Anxious/Depressed	65	63	58	66	52	50
Social Problems	74	67	58	63	63	53
Thought Problems	69	66	69	66	63	63
Attention Problems	76	63	70	68	68	63
Delinquent Behaviour	67	58	61	58	70	58
Aggressive Behaviour	17	10	11	4	16	5
Internalising	65**	62*	60*	62*	53	49
Externalising	66**	60*	61*	56	66**	57
Total Problems	69**	62*	64**	62*	64**	57

Student S (see Table 4.11) also had high scores in a number of categories during the primary support. On Ms. Zhang's rating, three and one categories fell into the clinical and borderline clinical ranges, respectively. On Ms. Ji's rating, one and three categories fell into the clinical and borderline clinical ranges, respectively. Four categories fell into the borderline clinical range on Ms. Chen's rating. In particular, Attention Problems, Externalising, and Total Problems scored highly across the three teachers' ratings. After the secondary support, most of the scores on the categories were lower. In particular, the three categories that had been rated with high scores scored lower across the teachers' ratings (except Attention Problems on Ms. Chen's rating). There were no categories that fell into the clinical range across the teachers' ratings. All categories except the Internalising were at the normal level on Ms. Zhang's rating. Similarly, the Total Problems was the only category with an abnormal score on Ms. Ji's rating. Ms. Chen's rating only had two categories that fell in the borderline clinical range.

Table 4.11: TRF-CV Results (T-Scores) for Student S at Pre- and Post-Secondary Support

Category	Ms. Zhang	Ms. Ji	Ms. Chen
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	T1	T4	T1	T4	T1	T4
Withdrawn	61	61	61	57	57	54
Somatic Complaints	50	50	50	50	50	50
Anxious/Depressed	55	59	58	55	50	50
Social Problems	63	56	58	60	62	58
Thought Problems	58	63	58	58	58	63
Attention Problems	67	57	79	66	67	68
Delinquent Behaviour	73	55	63	61	67	58
Aggressive Behaviour	62	50	59	55	61	56
Internalising	58	60*	61*	56	51	51
Externalising	65**	47	60*	57	62*	57
Total Problems	65**	57	64**	60*	62*	60*

Note. For Table 4.9 to 4.11: T1: Implementation of the primary support. T4: Post-intervention. t-scores range from 50 to 100. For the category Withdrawn, Somatic Complaints, Anxious/Depressed, Social Problems, Thought Problems, Attention Problems, Delinquent Behaviour, and Aggressive Behaviour, t-scores > 70 are considered to be in the clinical range, $67 \leq$ t-scores ≤ 70 are considered to be in the borderline clinical range, t-scores < 67 are considered to be in the normal range. For the category Internalising, Externalising, and Total Problems, * t-score reaches the borderline clinical range, ** t-scores reaches the clinical range.

4.4.4 Teacher perception of improvement during the implementation

4.4.4.1 From Week 8 to Week 12

Teachers reported the improvements of students who were engaged in the secondary support in the fourth and fifth meetings. By the fourth meeting, the intervention had been implemented for four or five weeks on the group of students (see Table 3.2 in Chapter Three for the time schedule of the practice). The three teachers reported increased in-class participation for all the participants. Ms. Zhang remarked, “In the past weeks, I have seen the improvements made by the students on learning.

They are trying some tasks in my class.” Ms. Chen followed up by saying, “Before the secondary support, Student W and S did not participate in any of the classroom activities. Now the students are more involving, though they still need more encouragement in answering my questions.”

The second improvement reported by the teachers was increased assignment completion. Ms. Ji was particularly impressed by the progress. Before the support, the teacher had never received an assignment from Student S and occasionally one or two pieces from the other two students. “I understand that some tasks might be too difficult for them, but they also did not want to try the easy ones,” the teacher expressed disappointedly. “In the last four weeks of intervention,” the teacher remarked, “Student S started doing some assignments. Student H and W could complete more works. I am pleased to see the improvement.”

Besides the improved on-task behaviour and cooperation in learning tasks, limited progress had been reported in relation to academic achievements. The only improvement was the increased accuracy in class quizzes on Chinese Literacy, as reported by Ms. Zhang. These tasks were designed to examine the outcomes of basic learning, including recognition and memory of phrases and sentences. The teacher did not detect improvements at the higher levels of learning such as analysis and creation.

4.4.4.2 From Week 13 to Week 16

By the time of the fifth meeting, the support had been conducted for nine weeks. The teachers continued perceiving student improvements in class participation and assignment completion during these weeks. “The three students, I feel content about their performances. They are doing assignments, answering my questions, working with classmates. Student H is doing particularly well. All the three are working hard and have met my expectation,” said Ms. Zhang. The other two teachers agreed with Ms. Zhang’s comment. They also commented that the performances of Students W and S “are not different from other students”.

A broad range of academic achievements had been sensed by the teachers during

these weeks. Ms. Zhang reported that the students had passed most of the class quizzes, some with high marks, on Chinese Literacy. They also did better in more sophisticated tasks such as writing an essay and reading comprehension. Ms. Ji and Ms. Chen also sensed improved academic outcomes by the students. Both teachers agreed that the students, in particular, Students H and W, could complete the academic tasks that required application of basic knowledge with a pass or higher mark.

In addition to the progress in academic learning, the teachers reported positive teacher-student relationships. A spontaneous action taken by the students was checking the teacher evaluation of their performance on the daily report card after class. All the teachers were pleased with this action. “Before the intervention, I had never expected these students would come to me in volunteer ... Now they come to check the points after class. I tell them which aspects they did well or need more effort,” said Ms. Chen. “They are good students already. They are pleased to have my acknowledgement... and accept my advices,” Ms. Zhang added.

The teachers also sensed positive peer relationships. The students used to be isolated from classmates due to their poor academic and behavioural performances. At the later stage, they were welcomed by their peers. For example, they were invited to join in group work, which was evident across all the teachers’ classes. Ms. Zhang observed that the class had already treated Students W and S similarly. Student H received more understanding from the rest of the class as well. She had been encouraged by peers to engage in class activities, and assisted by students with good academic achievements in assignments.

4.4.5 School achievement test result

The results of three academic subjects, namely, Chinese Literacy, Math, and English as a Foreign Language, at three points of time (early, middle, and end of the semester) were analysed. The reason for including the results from the middle of the semester was that the secondary support had been introduced after the exam. Students H and W received the intervention immediately after the middle exams. Student S

received the intervention in the week after. The Z-scores and percentile rank of the Z-score for each subject were calculated.

As illustrated in Table 4.12, the highest Z-scores were found at the end of the semester for the three participants across all the subjects (except Math for Student W). In particular, Student W had positive Z-scores (> 0) on Chinese Literacy and Math. Student S also had a positive Z-score on Chinese Literacy. It can be seen that an increasing trend of Z-scores started from the early exam (except Chinese Literacy and Math for Student W). In most situations, improvements during the primary support (between the Early to Midpoint) were smaller (except English as a Foreign Language for Student H), and larger improvements were found in the secondary support (between Midpoint to End).

A similar pattern was found for the percentile rank of individual Z-scores. The percentile rank determines the location of an individual's Z-score in comparison with other scores in the distribution of the entity of scores (Creswell, 2012). As demonstrated by Table 4.12, all the participants had low percentile ranks before the intervention. In particular, Students H and S were at the bottom of percentile ranks on Chinese Literacy and Math. When the intervention was introduced, the participants made improvements on the three subjects. However, the improvements during the primary support were minor for most situations (except English as a Foreign Language for Student H and Math for Student S). In comparison, the participants made larger improvements during the secondary support. In particular, the percentile ranks of Chinese Literacy for Students W and S reached to a relatively high level. The percentile rank of Math for Student W was also close to the average level of the grade.

Table 4.12: Z-score and Percentile Rank of Three Subjects on Individual Students Across the Practice

Student	Chinese Literacy			Math			English		
	Early	Mid	End	Early	Mid	End	Early	Mid	End
H	-2.75	-2.63	-1.15	-4.23	-2.06	-0.44	-1.50	-0.08	-0.24

	(1)	(3)	(15)	(1)	(6)	(28)	(9)	(46)	(41)
W	-1.78	-1.79	0.75	-1.61	-1.69	0.03	-1.35	-1.25	-0.59
	(7)	(9)	(71)	(6)	(10)	(46)	(10)	(12)	(27)
S	-3.40	-2.25	0.87	-4.23	-1.08	-1.45	-1.76	-1.73	-1.47
	(1)	(4)	(77)	(1)	(16)	(11)	(2)	(3)	(11)

Note. Parentheses contain percentile rank of a particular Z-score.

4.5 Student G

Before the introduction of the tertiary support, Student G engaged in the secondary support with the other three students. However, the student did not make constant improvements on the expected behaviours during the secondary support. Due to the unsatisfactory outcomes, Student G received the individualised support from Week 13. The intervention terminated at Week 19, which was the same time as the termination of the secondary support.

4.5.1 Targeted behaviour

The percentage of time intervals of engaged on-task behaviour was demonstrated in Figure 4.4 in section 4.4.1. The mean percentage and effect sizes for different intervention phases on this student were also calculated (see Table 4.13). The student remained at a low level of behaviour during the primary support, though an increasing trend can be seen through the three observation points (11%, 18%, and 35%). When the CI/CO with 60% criterion was introduced, the student was responsive for the first three weeks. However, his behaviour was extremely variable afterwards. In particular, the student did not exhibit any on-task behaviour in two observation points during the CICO 60% criterion (see Figure 4.4). In spite of a large effect size, the percentages of on-task behaviour during this intervention phase suggested that the student could not sustain the expected behaviour in the secondary support. Further, a sharply decreasing trend of the behaviour could be predicted.

When the tertiary support was introduced, the student was responsive

immediately. His on-task behaviour continued increasing and maintained in the interval of 80-100% throughout the implementation. The mean level of the behaviour increased by 66% and 27%, compared with the implementation of the primary support and the CI/CO with 60% criterion, respectively. A larger effect size was found for the support. The results indicated that the behavioural pattern during the tertiary support was responsive and sustained.

Table 4.13: Mean Percentage and Effect Size of On-task Behaviour and Assignment Completion of Student G in the Primary, Secondary, and Tertiary Supports

Measure	Mean Percentage (SD)			Cohen's <i>d</i>	
	T1	T2	T3	1	2
On-task behaviour	21	60	87	1.42	4.51
	(12.34)	(36.72)	(16.62)		
Assignment completion	17	18	74	0.06	2.23
	(23.33)	(16.07)	(27.97)		

Note. T1 = Implementation of the primary support. T2 = Implementation of the secondary support. T3 = Implementation of the secondary support. 1 = Effect size of T2. 2 = Effect size of T3.

4.5.2 Assignment completion

Student G had performed at an extremely low level of assignment completion during the primary support (see Figure 4.5 in section 4.4.2). In particular, the student did not complete any assignments in Week 7. His performance was not responsive to the CI/CO with 60% criterion either. The percentages during this phase did not suggest an increasing pattern, most of which were lower than 20%, except 44% was found for Week 11. A very small effect size was found, which was in line with the finding. However, a larger increasing pattern was found for the tertiary support. The mean level of assignment completion increased by 57% and 56%, compared with the implementation of the primary support and the CI/CO with 60% criterion, respectively. A large effect size was found for this phase.

4.5.3 Teachers' rating of problem behaviour

Student G had manifested a broad range of problem behaviours before the secondary support, as rated by the teachers. As shown in Table 4.14, the t-scores of Social Problems, Thought Problems, Attention Problems, Aggressive Behaviour, Internalising, Externalising, and Total Scores fell into the clinical range, and Delinquent Behaviour fell into the borderline clinical range, on Ms. Zhang's rating. The t-scores of Anxious/Depressed, Social Problems, Thought Problems, Attention Problems, Aggressive Behaviour, Delinquent Behaviour, Internalising, Externalising, and Total Scores fell in the clinical range. Less severe results were found on Ms. Chen's rating in that Attention Problems, Externalising, and Total Scores fell into the clinical and Social Problems fell into the borderline clinical range. Social Problems, Attention Problems, Externalising, and Total Problems scored highly across the three teachers' ratings.

As shown in Table 4.14, after the CI/CO with 60% criterion and tertiary supports, all the t-scores (except Anxious/Depressed and Thought Problems on Ms. Chen's rating) were lower. In particular, Social Problems, Attention Problems, Externalising, and Total Problems that had been allocated high scores scored lower across all the teachers' ratings. The t-scores of Social Problems, Attention Problems, Externalising, and Total Scores fell into the clinical range, and of Aggressive Behaviour and Internalising fell into the borderline clinical range on Ms. Zhang's rating. The t-score of Social Problems, Externalising, and Total Scores fell into the clinical range, and of Thought Problems, Aggressive Behaviour, Delinquent Behaviour, and Internalising fell into the borderline clinical range on Ms. Ji's rating. The t-score of Total Scores fell into the clinical range, and of Thought Problems, Attention Problems, and Internalising fell into the borderline clinical range on Ms. Chen's rating.

Table 4.14: TRF-CV Results for Student G at Pre-Secondary and Post-Tertiary Supports

Category	Ms. Zhang		Ms. Ji		Ms. Chen	
	T1	T4	T1	T4	T1	T4

Withdrawn	61	59	64	61	54	54
Somatic Complaints	50	50	50	50	50	50
Anxious/Depressed	65	65	77	63	61	61
Social Problems	88	72	82	72	68	65
Thought Problems	73	66	78	69	66	69
Attention Problems	89	79	87	79	79	69
Delinquent Behaviour	67	61	73	67	58	55
Aggressive Behaviour	77	68	89	70	66	62
Internalising	64**	62*	70**	63*	58	58
Externalising	74**	67**	84**	69**	64**	62*
Total Score	75**	68**	81**	71**	66**	64**

Note. T1 = Implementation of primary support only. T4= Post-intervention. ** = Score reaches the clinical range according to Hong Kong norm. * = Score reaches the borderline clinical range according to Hong Kong norm.

4.5.4 Teacher perception of improvement during the implementation

4.5.4.1 From Week 8 to Week 12

By the fourth meeting, Student G had been under the CI/CO 60% criterion for five weeks. During the weeks, the teachers perceived improvements of the student's on-task behaviour and in-class participation. Ms. Zhang said that the student could remain on-task for a longer time than before, but still needed frequent directions and feedback from the teacher. In addition, the teacher observed that the student had passed classroom quizzes a number of times. The teacher also gave higher marks on his assignments.

Minor achievements had been reported by the other two teachers. Ms. Ji remarked, "Student G only can remain on-task when he knows how to do the work. If he does not know how to do it, he interferes with other students or even throwing tantrum." Ms. Chen found the same problem in her class.

Another unsolved issue was assignment incompleteness, as reported by Ms. Ji and

Ms. Chen. The student had not shown progress in completing assignments in Math and English as a Foreign Language during the weeks. In particular, Ms. Ji reported that the student only did the assignments that were easy and required less than fifteen minutes to complete. In other situations where a task needed more effort, the student avoided doing it. Ms. Chen said that the student had never completed an assignment in her class, even though some tasks were simple and did not require much effort to complete.

A newly discovered problem was tantrum throwing in class, as reported by the three teachers. “Sometimes, he has a difficulty, for example, do not know how to do a role play, he throws things off, punches the desk, and cried... (When this happens) I have no idea on how to deal with the student,” said Ms. Chen. Ms. Zhang gave an insight into the problem. The student started showing the expected behaviour and had received better academic outcomes since the secondary support. Hence, he was motivated and eager to receive more acknowledgement and rewards from teachers and peers. He became frustrated and threw a tantrum when he found himself incapable of accomplishing a task, meaning that he lost the chance of showing off. As a concluding viewpoint, the three teachers all agreed that the problem required more intensified intervention.

4.5.4.2 From Week 13 to Week 16

By the time of the fifth meeting, the tertiary support for Student G had been implemented for four weeks. The three teachers were impressed by the student’s progress in varied aspects. One of the obvious improvements was the student’s participation in class instructions. The teachers reported that the student had volunteered to take part in class activities, including answering questions, showing his work in front of the class, and participating group discussion. Ms. Zhang perceived that he was eager to show off his accomplishments.

The second improvement was that the student had completed more assignments after class. He could now finish most of the assignments in Chinese Literacy and Math, and half of the assignments of English as a Foreign Language. When he had difficulty

in doing tasks, he sought extra assistance from the teacher or peers. In cases when he was still unable to complete the task after assistance, he agreed to do an alternative task assigned by the teacher.

The third improvement was in academic outcomes. Ms. Zhang reported that the student had passed most of the quizzes and performed well in the reading comprehension in Chinese Literacy during the sessions. The other two teachers reported that he had reached a good level of accuracy on basic tasks such as arithmetic in Math, and memorising words in English as a Foreign Language.

The fourth improvement was emotional control. The teachers sensed that the student had learnt to control his temper. In about half the situations, he tried to calm-down himself before throwing a tantrum. Ms. Zhang felt that the functional behavioural plan (see Appendix A) helped the student reduce the occurrence of tantrums.

The fifth improvement was a better social relationship between the student and peers, as observed by Ms. Zhang and Ms. Chen. The teachers found that other students such as his desk-mates volunteered to help Student G in and after class. In addition, the student acquired more acknowledgements from peers. Before the tertiary support, the student was still misunderstood and isolated by most of his peers. “Before, other students thought that he often went crazy... So they did not like working with him (in class), nor playing with him (after class),” described Ms. Zhang.

Overall, the teachers sensed more strength from the student, and provided positive evaluation of his progress. Ms. Zhang stated,

“When I am having a class, I like teaching Student G new knowledge. I am pleased to see him showing understanding and practicing the knowledge. Thus, I think the (individualised) intervention works for him. It is in effect, like the immunity keeps a person healthy. And the outcome is obvious.”

Ms. Ji believed that the student was as intelligent as other students, or even a “fast learner” sometimes. Ms. Chen reported that she had given more opportunities to

Student G to show his abilities. This feedback further suggested an improved teacher-student relationship.

4.5.5 School achievement test result

The data analysis procedure was identical to the analysis for the participants of the secondary support. The Z-score and percentile rank of three subjects were calculated. As illustrated by Table 4.15, the highest Z-scores were found at the end of the semester across all the subjects. Moreover, the Z-scores of Chinese Literacy and Math became positive (> 0), whereas the scores were negative in the beginning and middle tests. In comparison, the scores on Chinese Literacy and English as a Foreign Language in the middle exam were even lower than the scores in the early exam.

A similar pattern was found for the percentile rank of Z-scores. As shown by Table 4.15, the student fell to a low level on the three subjects. In particular, the percentile ranks of Chinese Literacy and Math almost reached the bottom of the grade. When the primary support was introduced, the percentile rank of Math increased to 17% in the middle exam. However, the other subjects deteriorated to the bottom of the grade. After the termination of the tertiary support, all three percentile ranks increased. In particular, the percentile rank of Chinese Literacy reached a high level, meaning that 84% of the students in the grade scored the same or below Student G. A large improvement also was found in Math in that the student scored at the same or higher level than 56% of the students in the grade. A considerable increase of the percentile rank of English as a Foreign Language was found, though the current level was still lower than 75% of the students in the grade.

Table 4.15: Z-score and Percentile Rank of Three Subjects of Student G Across the Practice

Value	Chinese Literacy			Math			English		
	Early	Mid	Late	Early	Mid	Late	Early	Mid	Late
Z-score	-2.69	-3.46	1.09	-3.52	-1.05	0.35	-1.33	-2.25	-0.71

PR	2	1	84	2	17	56	11	1	25
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4.6 Summary

This chapter illustrated and reviewed the data collected in addressing the research questions that focused on students' outcomes. First, the data were analysed on the class, in relation to its behavioural performances, academic achievements, and satisfaction of school life. The process at this stage guided the following investigation for the holistic case:

1. Visual analysis of the occurrences of off-task and inappropriate talking, and the percentages of assignment completion across the continuum of implementing phases illustrated the immediate effects, changes, and trends of the targeted behaviours that were critical in classroom learning. Examination of effect size (Cohen's *d*) was applied for triangulating the findings of visual analysis.
2. The teachers' reflections about the students' problem behaviour at pre- and post-implementation stages were compared to demonstrate the change of problem behaviour in its categories and estimated prevalence rate. Subjective evaluation of the students' behaviour was also acquired through the teachers' continual feedback of behavioural and academic performances during the implementation. Key themes emerged from the qualitative analysis converged to suggest behavioural change from the teachers' perspective.
3. Parents' ratings of the CBCL-CV at pre- and post-implementation stages were compared on the basis of descriptive analysis, paired-samples t-test, and Cohen's *d*. These demonstrated the change of problem behaviour in categories and degrees standardised by the instrument. This investigation pattern matched with the above two investigations to provide insights into Question 1-a (see Section 2).
4. The results of school achievement exams on three main subjects at pre- and

post-implementation stages were compared on the basis of descriptive analysis of Z-scores, paired-samples t-test, and Cohen's *d*. This investigation triangulated with the second point (see above) for the inquiry of Question 2-a.

5. Students' ratings of the QSL-CV at pre- and post-implementation stages were compared on the basis of descriptive analysis, paired-samples t-test, and Cohen's *d*. These demonstrated the change of students' satisfaction towards aspects of school life categorised by the instrument. The inquiry was for Question 3.

The second part of this chapter presented the data analysis for the group of three students who received the secondary support. This stage of investigation guided understanding of the first embedded unit of analysis:

1. Visual analysis of the occurrences of on-task behaviour and the percentages of assignment completion on individual students across the continuum of the primary support, the CI/CO with 60% criterion, and the CI/CO with 70% criterion illustrated the immediate effects, changes, and trends of the targeted behaviours that were vital for the group. Cohen's *d* was calculated to triangulate the findings of visual analysis.
2. The teachers' ratings of the TRF-CV at pre- and post-secondary support were compared on descriptive of t-score of each category standardised by the instrument. It demonstrated the change of problem behaviour in categories and degrees for each of the students.
3. The behavioural performance of the group was also examined by analysing the teachers' subjective feedback of behavioural and academic improvements in the fourth and fifth meetings. This investigation pattern matched with the above two investigations to provide insights into Question 1-b.
4. The results of school achievement exams on the three main subjects at pre-,

inter-, and post-implementation stages were compared on the basis of descriptive analysis of Z-score and percentile rank for each of the students. This investigation triangulated with the second point (see above) for the inquiry of the change of the group's academic achievement (Question 2-b).

The final section presented the results for the individual student who received the tertiary support, which guided understanding of the second embedded unit of analysis:

1. Visual analysis of the occurrences of on-task behaviour and the percentages of assignment completion across the continuum of primary support, the CI/CO with 60% criterion, and the individualised plan illustrated the immediate effects, changes, and trends of the targeted behaviours. Cohen's *d* was calculated to triangulate the findings of visual analysis.
2. The teachers' ratings of the TRF-CV at pre- and post-tertiary support were compared based on the t-score of each category standardised by the instrument, which indicated the change of problem behaviour.
3. The teachers' subjective feedback of the student's academic and behavioural performance from the fourth and fifth meetings were analysed. This investigation pattern matched with the above two investigations for the inquiry of Question 1-b.
4. The results of school achievement exams on the three main subjects at pre-, inter-, and post-implementation stages were compared on the basis of descriptive analysis of Z-score and percentile rank. This investigation triangulated with the second point (see above) for the inquiry of the change of the student's academic achievement (Question 2-b).

The subsequent chapter will present results of the data analysis on teachers' outcomes associated with the implementation.

CHAPTER FIVE RESULTS: TEACHER OUTCOMES

5.1 Introduction

This chapter presents the results of the teacher outcomes in relation to the intervention. These are fidelity of treatment, management strategies of classroom management, self-efficacy of teaching, and acceptance of the implementation. Qualitative and quantitative data were collected to determine the outcomes.

The results are firstly presented to illustrate the treatment fidelity. The teachers were observed during their classroom instruction. The percentage occurrence and the percentage of compliance of the expected strategies were calculated and discussed, respectively. The second part of the analysis entails the teachers' management strategies for dealing with classroom problem behaviours. The teachers were interviewed individually at pre-implementation to identify the strategies they had used, and at post-implementation to determine the strategies they would use in the future. The strategies were grouped into categories and then compared between the two stages. The third section of the results is the teachers' sense of teaching efficacy. The teachers were interviewed individually, including completing the questionnaire TES-CV before they provided an explicit explanation for some of their answers. These explanations were themed, and then compared between the two stages. The last part of the results presents the teachers' acceptance of the implementation. Data were drawn from PBS meetings during the implementation and teacher interviews after the implementation. The teachers' satisfaction with the procedures and outcomes are interpreted and discussed.

5.2 Relevance to the study

This chapter is concerned with four research questions:

Question 4: What is the fidelity of implementation?

Question 5: How have teachers' management strategies changed in association with the implementation of CWPBS?

Question 6: How have teachers' teaching efficacy changed in association with

the implementation of CWPBS?

Question 7: What is teachers' acceptance of CWPBS?

Six data sources were analysed to address these questions (see Table 5.1). The specific analysis procedures are presented below for each of the data sources.

Table 5.1: Data of Resources and Relevant Research Questions

Data of Resources	Research Question(s) Addressed
Direct observation of teacher behaviour in class	Question 4
Teacher reflection on management strategies (interview)	Question 5
Teacher rating of teaching efficacy	Question 6
Teacher reflection on teaching efficacy (interview)	Question 6
Teacher reflection on general satisfactory during the implementation (participation observation)	Question 7
Teacher reflection on general satisfactory after the implementation (interview)	Question 7

5.3 Treatment fidelity

Before implementation, seven desirable strategies for classroom management had been decided in the second PBS meeting (see section 3.5.1.2 in Chapter Three). The fidelity of treatment of individual teachers was observed and rated by the researcher and the inter-observer based on those strategies (see Appendix D). The percentage occurrence reflected the frequency of utilising a desired strategy. It showed whether a teacher had exhibited the expected action, but did not indicate the extent to which the action was compliant with the guideline. The percentage compliance determined the quality of the teacher's action. Only if the teacher exhibited the expected behaviour and also followed the procedure of the strategy, would the action be considered as compliance.

As shown by Table 5.2, on average, all the teachers used the expected strategies during most of their instructional time. This suggests that the teachers tried to behave positively in the class. However, it was more difficult for them to follow the procedure

rigorously. None of the teachers acted in compliance with the procedures for more than half of the observed situations. Ms. Zhang had the highest percentage of occurrence (82%) among the three, but had the lowest percentage of compliance (28%).

Table 5.2: Mean Fidelity of Treatment Across Instruction Led by the Teachers

Percentage	Mean (Range)		
	Ms. Zhang	Ms. Ji	Ms. Chen
Occurrence	82 (29~100)	77 (29~100)	79 (29~100)
Compliance	28 (0~86)	46 (0~86)	42 (0~86)

The percentage occurrence and percentage compliance were calculated for each of the strategies. As shown by Table 5.3, Actively engaging students with academic-related tasks, Pre-correction, Specific praise to reprimand ratio is at least 2:1, and Issuing rewards were the most often used strategies of Ms. Zhang. Active supervision, Actively engaging students with academic-related tasks, and Followed the proper procedure of using punishment for reducing the occurrence of problem behaviour were the most often used strategies of Ms. Ji and Ms. Chen. Additionally, Ms. Chen often used Rewarding. These findings indicate that the teachers were willing to use multiple strategies to promote positive classroom management. By contrast, the Opportunity for correction had low or relatively low percentage occurrence and extremely low percentage compliance for all the teachers. This implies that the teachers tended to maintain the negative approach for students who had showed problem behaviours in the classroom.

Beside some similarities, the data suggest that the teachers had different styles in using the strategies. Ms. Zhang tended to use Pre-correction and also provided more positive acknowledgement than the other teachers. She had high percentage occurrence on the use of all the strategies, but most had low percentage compliance. In particular, the percentage compliance of Active supervision was extremely low. Ms. Ji used Active supervision in every observation, which also had a high level of compliance. However, she had relatively low percentage occurrence on some strategies, in particular, providing

corrective opportunities and positive acknowledgement to students. Ms. Chen used Active supervision and Actively engaging students with academic-related tasks in every observation. High percentage compliance was found for the use of Actively engaging students with academic-related tasks, whereas relatively low percentage compliance was found for the use of Active supervision. In addition, although she had high percentage occurrence on using positive acknowledgement, low percentage compliance with the procedure was found.

Table 5.3: Mean Fidelity of Elements Across Instructions Led by Different Teachers

Strategy	Percentage of Occurrence			Percentage of Compliance		
	Ms. Zhang	Ms. Ji	Ms. Chen	Ms. Zhang	Ms. Ji	Ms. Chen
Pre-correction	93	62	62	36	3	14
Active supervision	68	100	100	4	93	59
Specific praise to reprimand ratio is at least 2:1	82	52	76	29	3	14
Actively engaging students with academic-related tasks	96	93	100	50	76	86
Rewarding	82	76	86	21	41	59
Opportunity for correction	71	48	45	18	14	3
Followed the proper procedure of using punishment for reducing the occurrence of problem behaviour	75	97	86	39	90	59

5.4 Management strategies reflected by the teachers

5.4.1 Before the implementation

During interviews at pre-implementation, the teachers described problem behaviours that had influenced their class management. Based on these conversations,

the teachers described the management strategies they had used to solve these problems. In total, the teachers nominated 20 management strategies (see Table 5.4). Each of the strategies was identified ‘positive’, ‘negative’, or ‘neutral’, based on two previous studies by Martin, Linfoot, and Stephenson (1999) and Ding and colleagues (2010). The first study proposed that teachers’ management strategies were positive in focus, negative, or neutral. Ding and colleagues incorporated Martin et al.’s general structure of management strategies with Chinese culture to explain Chinese teachers’ classroom management.

Table 5.4: Copy Strategies Reported by the Teachers Before the Implementation

Management strategy	Type	Referred by
Told students a story or joke to attract their attention	P	Ms. Zhang
Talked about importance of study to students in class meetings	P	Ms. Zhang
Guided students to envision good future to motivate their learning	P	Ms. Zhang
Kept interactions with students	P	Ms. Ji
Walked into students to promote their self-awareness	P	Ms. Ji
Encouraged the student to work better	P	Ms. Ji
Called the student's name	N	Ms. Zhang
Asked the student to stand up at the seat, or in the front (back) of the classroom	N	Ms. Zhang
Asked the student to repeat teacher's words	N	Ms. Zhang
Took away the student's toy	N	Ms. Zhang
Asked the student to copy texts for many times	N	Ms. Zhang
Asked the student to stand outside of the classroom and complete the assignment	N	Ms. Zhang
Stopping instruction and staring at the student	N	Ms. Ji
Asked the student to do the task for a week	N	Ms. Zhang
Criticised the student's problem behaviour in the class	N	Ms. Ji, Ms. Chen

Asked the student a question	Ne	Ms. Zhang, Ms. Ji
Contacted the student's parent(s)	Ne	Ms. Zhang
Integration of criticising and appraising	Ne	Ms. Ji
Talked with the student after class	Ne	Ms. Ji, Ms. Chen
Reminded the student	Ne	Ms. Ji, Ms. Chen

Note. P = positive strategy. N = negative strategy. Ne = neutral strategy.

The structure proposed by Ding and colleagues included all the strategies nominated by the teachers in the present study except the strategy ‘Talked with the student after class’. According to the researchers, the strategy is positive because it benefits student self-esteem. The researchers pointed out that teachers who utilised the strategy had a willingness to protect student ‘face’, an important element of social identity in Chinese culture. In addition, they suggested that the teachers preferred having deep conversations with the student. However, according to Ms. Ji and Ms. Chen’s descriptions, there were other rationales for them to choose the strategy. First, they did not want to spend more time on individual students because every lesson was fully planned. If they talked with the student in class, they might not complete the lesson plan. Secondly, they did not want to affect other students’ learning and interests. While they were talking with an individual student, other students might become restless or bored. In these situations, the use of the strategy is not to protect the student, but for time convenience or overall class atmosphere. Thus, ‘Talked with the student after class’ in the present study was identified as neutral.

Among the 20 strategies, six were considered positive (30%), nine were negative (45%), and five were neutral (25%). This indicates that the teachers tended to be negative in their classroom management. Among the three teachers, only Ms. Ji reported slightly more positive strategies ($n = 3$) than negative strategies ($n = 2$). Ms. Zhang used fewer positive strategies ($n = 3$) than negative strategies ($n = 7$). Ms. Chen

did not report the use of any positive strategies. 'Criticised the student's problem behaviour in the class' was referred to by Ms. Ji and Ms. Chen. The strategy is a non-physical punishment that can elicit student feelings of humiliation and tension (Martin, et al., 1999). The findings further point to the negative instructional style adopted by the teachers. The general solution for classroom management was tackling problems as they occurred. Only after a problem behaviour had influenced the class performance, would the teachers attempt to solve it. In some cases, they used positive strategies to motivate students, and expected their self-awareness. However, there was no procedure for preventing the problem, nor a procedure for sustained improvement in their management. Thus, when the problem re-occurred, the teachers felt disappointed or frustrated, and were likely to use negative strategies to suppress it.

Moreover, the teachers' repertoires of management strategies were diverse. For instance, there were no identical strategies in Ms. Zhang and Ms. Chen's reports. Only four strategies were referred to by more than one teacher, each of which was either negative or neutral. The lack of consistency in classroom management strategies among the three teachers implies that they might have treated the same problem differently. This can affect the effectiveness of behavioural management (Horner, 2000; Sugai & Horner, 2009).

5.4.2 After the implementation

During the interviews after the implementation, the teachers were asked to suggest management strategies that they would use to solve the five categories of problem behaviour (see section 4.3.3 in Chapter Four) identified, based on their previous interviews. In total, 11 strategies were reported, including six positive (55%), two negative (18%), and three neutral (27%) strategies. All the teachers proposed the use of positive strategies for problem behaviours in the future. Ms. Zhang reported five positive strategies and one negative strategy. Ms. Ji reported four positive strategies and one negative strategy. Ms. Chen did not suggest any negative strategies. In comparison with the teachers' responses on the same question before the implementation, the

current answers suggested a more positive classroom management style. These teachers would use antecedent strategies to prevent the occurrence of problem behaviour and promote the appropriate behaviour.

Further, the teachers' repertoires of management strategies were more consistent at this stage. Six strategies were proposed by at least two teachers, among which four were positive strategies. "Teaching and praising the expected behaviour" and "Acknowledging the student's improvement" were mentioned by all the teachers. Furthermore, all the positive strategies correspond to strategies used in the implementation. In particular, "Teaching and praising the expected behaviour", "Pre-correction", and "Acknowledging the student's improvement" are the expected strategies.

Table 5.5: Copy Strategies Reported by the Teachers After the Implementation

Management strategy	Type	Referred by
Teaching and praising the expected behaviour	P	Ms. Zhang, Ms. Ji, Ms. Chen
Pre-correction	P	Ms. Zhang, Ms. Ji
Positive peer reporting	P	Ms. Zhang
Encourage the student to work better	P	Ms. Ji, Ms. Chen
Acknowledging the student's improvement	P	Ms. Zhang, Ms. Ji, Ms. Chen
Differentiating tasks to motivate students	P	Ms. Zhang
Calling the student's name	N	Ms. Zhang
Stopping instruction and staring at the student	N	Ms. Ji
Integration of criticising and appraising	Ne	Ms. Ji, Ms. Chen
Talking with the student after class	Ne	Ms. Ji, Ms. Chen
Reminding the student	Ne	Ms. Ji

Note. P = positive strategy. N = negative strategy. Ne = neutral strategy.

5.5 Sense of teaching efficacy

5.5.1 Result of TES-CV

Teachers' interviews about their senses of teaching efficacy were conducted at pre- and post-implementation. At both stages, teachers were requested to complete the questionnaire TES-CV and then provide reasons for their choices. The score of the General Teaching Efficacy, Personal Teaching Efficacy, and Total, and percentage of change are presented for each of the teachers (see Table 5.6).

Table 5.6: Teacher's Sense of Teaching Efficacy Rated by the Teachers Before and After the Implementation

Respondent	General Teaching Efficacy		Personal Teaching Efficacy		Total	
	T1	T4	T1	T4	T1	T4
Ms. Zhang	5.70	6.00	5.18	5.24	5.37	5.52
Ms. Ji	4.60	5.30	4.12	4.94	4.30	5.07
Ms. Chen	2.40	4.40	2.53	3.82	2.48	4.04

As shown by Table 5.6, all the teachers had an increment on each subscale and total score. Ms. Zhang had high levels on General Teaching Efficacy, Personal Teaching Efficacy, and Total before the implementation, and still had increases (5% for the General Teaching Efficacy, 1% for the Personal Teaching Efficacy, and 3% for the Total) after the implementation. In particular, she rated all items under the subscale 'General teaching efficacy' with 'strongly agree' at the later stage. Ms. Ji had medium to high levels on each subscale and the total score before the implementation, and had considerable improvement afterwards (15% for the General Teaching Efficacy, 20% for the Personal Teaching Efficacy, 18% for the Total). Ms. Chen had low levels on each subscale and total score before the implementation. After the implementation, her General Teaching Efficacy, Personal Teaching Efficacy, and Total increased by 83%, 51%, and 63%, respectively. Further, both subscales changed from negative (< 3) to positive (> 3).

In summary, according to the interviews before the practice, the three teachers had high, medium, and slightly low levels of teacher efficacy, respectively. The interviews after the practice indicated that two of the teachers had high levels of teaching efficacy, and the other teacher who used to adopt the negative pattern had changed to a positive pattern.

5.5.2 Teacher explanation

The teachers provided explanations for each item that they rated with the answer ‘definitely disagree’, ‘moderately disagree’, ‘moderately agree’ or ‘definitely agree’ at the pre-implementation interview. After the practice, the teachers were asked to provide reasons for any item that had a discrepancy of answer in two scales or more between the pre- and post-implementation stages. For instance, for the item “The amount that a student can learn is primarily related to family background”, Ms. Chen selected the answer “definitely agree” before the implementation and “slightly agree” after the implementation. There is a two-scale discrepancy between the answers “definitely agree” and “slightly agree”. Thus, she provided a reason for the differentiated answers.

5.5.2.1 Ms. Zhang

5.5.2.1.1 Before the practice

During the first interview, Ms. Zhang rated all the items of the General Teaching Efficacy with the answer ‘moderately agree’ or ‘definitely agree’. Thus, she provided explanations for each of the items. Her explanations were then categorised into four themes (see Table 5.7) that reflected her belief about the teacher’s role in teaching and learning, and student development in general.

Table 5.7: Themes Developed from Interview with Ms. Zhang Before and After the Implementation

Subscale		T1	T4
General teaching	a. Teachers are capable.		a. Teachers are capable.
	b. Students are educable.		b. Students are educable.

efficacy	c. School education is important.	c. School education is important.
	d. Teacher-parent collaboration is important.	d. Teacher-parent collaboration is important.
Personal teaching efficacy	a. I am capable of academic instruction.	a. I am capable of academic instruction.
	b. I am good at problem solving.	b. I am good at problem solving.
	c. I am good at maintaining positive teacher-parent relationship.	c. I am good at maintaining positive teacher-parent relationship.
	d. I am good at maintaining positive teacher-student relationship.	d. I am good at maintaining positive teacher-student relationship.
		e. I am capable of helping students with sever problem behaviour.

Ms. Zhang believed that a teacher could teach every student to be a good student in relation to behavioural performance, academic success, and moral development. If a student behaved poorly at home, she believed that the teacher could help the student behave better at school and home. If a student did poorly in academic learning, she believed that the teacher who used proper procedures could help the student succeed. She emphasised the key role played by the teacher in student development.

At the same time, Ms. Zhang posited that humans were born with good natures. Every student was educable in school, family, and other social environments. The teacher emphasised that school was the most important environment of formal education for children. School education had been valued by Chinese society for thousands of years, and such a tradition would continue to prepare children to be well educated and skillful for their entry to adult society. In addition, Ms. Zhang talked about the importance of teacher-parent collaboration. “Parents play a key role in students’ development because they had known their child since birth”, she further quoted, “As a teacher, (we) should often communicate with parents, exchange information and needs... this will benefit students’ development”. She believed that good teacher-parent communication was a necessary condition of efficacious school education.

As for the subscale, Personal Teaching Efficacy, Ms. Zhang rated 14 of the 17 items with the answer ‘moderately agree’ or ‘definitely agree’ and did not rate any of the remaining items with the answer ‘definitely disagree’ or ‘moderately disagree’. She provided reasons for the 14 items. Her explanations were then grouped into four themes (see Table 5.7) that reflected her beliefs about the self in academic tasks and educating students.

Ms. Zhang expressed a high level of confidence in academic teaching, problem solving, and positive relationship maintenance. First, she evaluated herself capable in all the academic-related situations stated in the questionnaire. These included having a good sense of teaching material, making teaching plans in careful detail, assigning appropriate tasks for students with learning difficulties, and helping underachieving students to achieve. Secondly, she commented that she was capable of solving problems that occurred during the process of teaching and learning. This included increasing student attention, helping students with learning difficulties, and designing effective procedures for improving academic achievements.

Lastly, the teacher was confident in the establishment of positive teacher-student and teacher-parent relationships. She emphasised that both were the most important relationships in her role as homeroom teacher. Communicating with students was not only one of the key tasks of classroom management, but also a direct and effective strategy for understanding the class and individual students. Contacting parents was another key task of being a homeroom teacher. The teacher further pointed out that teacher-parent communication could be complicated sometimes. She then gave an example. “Sometimes, parents do not like to be contacted by the teacher, to avoid receiving bad news on their child. (This is) especially true for the parents who care much about “face” (social stigma)”, quoted by the teacher. However, she was confident that she could always find an effective way to communicate with particular parents. The teacher said years of working experience as a homeroom teacher and personal experience as a parent as well helped her to accumulate skills for maintaining positive

social relationships in and after class.

The item that indicated low efficacy was item number 15, that is, ‘If a student is disruptive in class, I often have an idea to cope with the problem’. Ms. Zhang selected the answer “slightly disagree”. She expressed some concerns in the situation. She acknowledged that disruptive behaviour interfered with class routine and academic instruction. However, it took a longer time and more effort for her to deal with the problem. Moreover, the teacher found that the outcomes of her behaviour management were unsatisfying, in some cases. In other cases, positive outcomes might not last for a long time, and the problem behaviour returned.

5.5.2.1.2 After the practice

During the second interview, Ms. Zhang rated all the items of General Teaching Efficacy with the answer ‘definitely agree’. She was not requested to provide reasons for her answers because there was not a great discrepancy in the responses between the two phases.

As for the subscale personal teaching efficacy, Ms. Zhang rated 16 of the 17 items with the answer ‘moderately agree’ or ‘definitely agree’ and the remaining item with the answer ‘slightly agree’. The teacher was then requested to provide the reason for item number 15 (see above) because she rated ‘moderately agree’ this time. She explained that through the implementation of CWPBS, she could assess students’ needs more accurately and was able to design more effective procedures for solving the problems. Having been aware of behavioural and academic improvements of the students with severe problem behaviour throughout the semester, she was more confident at this time than before the improvement in her personal ability of teaching.

5.5.2.1.3 Summary

Ms. Zhang had adopted a high level of general and personal teaching efficacy before the intervention. She believed that the teacher played a critical role in children’s development and that she was capable of accomplishing most of the responsibilities of

being a successful teacher. Nevertheless, her sense of teaching efficacy still improved throughout the intervention. In particular, the teacher considered herself more competent in dealing with students with disruptive behaviour. She believed that such an improvement was the result of the implementation.

5.5.2.2 Ms. Ji

5.5.2.2.1 Before the practice

During the first interview, Ms. Ji rated seven of the ten items in the subscale General Teaching Efficacy with the answer ‘moderately agree’ or ‘definitely agree’ and one item (number 1) with the answer ‘definitely disagree’. She was requested to provide explanations for the eight items. Her explanations were then categorised into five themes (see Table 5.8).

Table 5.8: Themes Developed from Interview with Ms. Ji Before and After the Implementation

Subscale	T1	T4
General teaching efficacy	a. Students are educable. b. School education is important. c. Teacher role is important. d. Student effort is important. e. Teacher may be incapable of coping with students with special behavioural or academic needs.	a. Students are educable. b. School education is important. c. Teacher role is important. d. Student effort is important. e. Teacher can cope with students with special behavioural or academic needs.
Personal teaching efficacy	a. I am learning to be capable of academic instruction. b. I am learning to be capable of problem solving. c. I am learning to communicate with parents.	a. I am learning to be capable of academic instruction. b. I am learning to be capable of problem solving. c. I am learning to communicate with parents. d. I am capable of assigning suitable tasks for students with learning

difficulties.

- e. I am capable of establishing good teacher-student relationship.
-

Ms. Ji posited that children were educable and their development was determined by school education, social environment, and personal effort expenditure. School education could change a child in many respects, including social behaviour, moral, and academic achievements. The teacher pointed that a student who did not behave well at home might improve after receiving school education. This was because school was a place to teach children social expectations and rules. In school education, Ms. Ji pointed out that the teacher's role was a key factor. 'Teachers do not only guide student learning, but also influence student behaviour and moral development through their own behaviour and beliefs,' she said.

The factor that most affected school education and teacher influence, as mentioned by Ms. Ji, was student effort expenditure. The teacher believed that effort compensated for disadvantaged conditions such as a poor learning environment for the student. By contrast, a student who did not expend effort would not achieve, no matter how advantageous were the external conditions he or she had.

The teacher talked negatively about item number 1, that is, 'There are always good students and poor students in class. A teacher can change every poor student into a good student.' She strongly disagreed with the statement and expressed the view that both teachers and students should take responsibility for academic learning. 'If a student him or herself did not want to learn and displayed poor study habits or problem behaviour, then it was impossible for the teacher to change that student,' she explained.

For the subscale Personal Teaching Efficacy, she rated 7 of the 17 items with the answer 'moderately agree' or 'definitely agree' and one item (number 26) with the answer 'moderately disagree'. She provided reasons for the eight items. Her explanations were then grouped into three themes (see Table 5.8).

Ms. Ji's belief about her personal teaching efficacy suggested an inexperienced

but positive style. The viewpoints and strategies she talked about for each of the situations were indirect experiences. These were acquired from textbooks or professional teachers. Thus, she had shown limited awareness of individual differences among students. For example, she did not realise that some students in the class could not complete academic tasks due to deficits in knowledge or practice. In such cases, she simply thought that the students were lazy. She also believed that the task difficulty that she assigned was appropriate for every student. This again implies that the teacher was not aware of individual differences and thus could not assess individual needs and academic achievement accurately.

On the other hand, she acknowledged that she had yet to become capable of dealing with all situations that occurred during academic instruction, behavioural management, and parent communication. The current belief and strategies she had could be improved. She expressed willingness and confidence to become more professional.

5.5.2.2.2 After the practice

During the second interview, Ms. Ji rated eight items of the General Teaching Efficacy scale with the answer ‘moderately agree’ or ‘definitely agree’. She did not rate any items with the answer ‘definitely disagree’ or ‘moderately disagree’. The teacher was requested to provide the reason for item number 1 (see above) because she rated ‘moderately agree’ this time. She explained that through the implementation, she sensed that students with poor performance could be directed step by step and thereby improve. It was vital for the teacher to understand the student needs and find out appropriate ways to intervene for the student.

For the subscale Personal Teaching Efficacy, Ms. Ji rated 12 of the 17 items with the answer ‘moderately agree’ or ‘definitely agree’. She did not rate any items with the answer ‘definitely disagree’ or ‘moderately disagree’. The teacher was requested to provide the reasons for item numbers 16, 26, and 27. The conversations reflected her improved sense in instructing students with special needs, including recognising their differences and assigning differentiated tasks. She stated that the importance of

schoolwork was not for treating all students with identical procedures, but to assign the tasks that were suitable for individual development. Another improvement reflected in the teacher's conversation was improved teacher-student communication. Before the practice, her communication with students was limited to classroom instruction and only rarely after class. As the intervention progressed, she spent most of her work time with students and had acquired more knowledge about the students.

5.5.2.2.3 Summary

As a teacher who had graduated from university a short time previously, Ms. Ji's sense of teaching efficacy was immature and developing. Before the practice, although her belief about the teacher's role suggested capability, she could not perceive individual differences, and thus treated all the students with the same strategies and procedures. This led to instructional difficulties and weak relationships with the students. After the intervention, her beliefs about the teacher's role and personal teaching efficacy improved. She could identify individual students' needs, and consider differentiated procedures that were suitable for these students. Her communication with the students also improved, which helped her understand them better.

5.5.2.3 Ms. Chen

5.5.2.3.1 Before the practice

During the first interview, Ms. Chen rated one of the ten items in the subscale General Teaching Efficacy with the answer 'moderately agree' or 'definitely agree', and seven items with the answer 'definitely disagree' or 'definitely disagree'. She was requested to provide explanations for the nine items. Her explanations were then categorised into three themes (see Table 5.9).

Table 5.9: Themes Developed from Interview with Ms. Chen Before and After the Implementation

Subscale	T1	T4
General	a. Parent role is more important than	a. Teacher role is important.

teaching efficacy	teacher role.	b. Parent role is important.
	b. Students are educable.	c. Students are educable.
	c. Teachers may be incapable of changing students.	d. Teachers are capable of changing students.
Personal teaching efficacy	a. I may be incapable of academic instruction.	a. I am learning to be capable of academic instruction.
	b. I do not know how to teach students with special needs.	b. I am learning to be capable of teaching students with special needs.
	c. I have limited contact with my students.	c. I have many contacts with my students.
	d. I have limited contact with parents.	d. I am learning to contact with parents.

Like the other two teachers, Ms. Chen also viewed children as educable. Nonetheless, her belief about general teaching efficacy revealed a negative pattern. First, she considered parents as a more important and influential factor than teachers in children's development. When she was asked directly whether 'A teacher has much influence on a student compared to the influence of his/her parents (item number 4)', a moderate disagreement was expressed. Such a stand was repeatedly raised in her explanations for other items. Secondly, she thought teachers might be incapable of changing students. She stated that if a student did not complete homework, the teacher really could do nothing to change the student. In this case, she believed that only the parents could help the student.

Overall, the teacher believed that student development, including social behaviour, academic achievement, and morality, was mostly determined by parenting and the family environment. She provided three reasons for such a stance. First, given a large-size class, teachers had fewer chances to interact with individual students. Secondly, academic instruction took almost all of the class time, and teachers had limited time to deal with other issues. Thirdly, parents had known the child for a long

time and also had many chances to be with the child. Thus, they were more likely to deal with the child, compared to the teachers.

For the subscale Personal Teaching Efficacy, she only rated two of the 17 items with the answer ‘moderately agree’ but nine items with the answer ‘moderately disagree’ or ‘definitely disagree’. She provided reasons for the 11 items. Her explanations were then grouped into four themes (see Table 5.9). Likewise, Ms. Chen’s personal teaching efficacy suggested a negative pattern. She expressed concerns with her ability in academic instruction, such as preparing teaching plans, assessing the appropriate level of difficulty of assignments, and solving student problems that occurred in learning. She also found difficulty coping with students with learning difficulties or behavioural problems. She explained that the knowledge and skills learned from the university were insufficient to handle the day-to-day problems. She considered herself as merely an assistant of student learning, indicating that students should manage and be responsible for their own study. ‘I really cannot help if a student was not trying hard,’ she said.

In addition to her low sense of competence in classroom teaching, the teacher had limited contact with students and parents. She explained that she had been contacted by few students or parents. She also expressed low confidence in communicating with parents. ‘I have no idea on how to communicate with the parents if they do not care about the child’s study or behaviour,’ she said. These, again, suggest that the teacher was passive in her role as a teacher. If the student or parents were not trying to make a change, the teacher would not expect nor take action for a change.

5.5.2.3.2 After the practice

During the second interview, Ms. Chen rated five items of the General Teaching Efficacy subscale with the answer ‘moderately agree’ or ‘definitely agree’ and did not rate the remaining items with the answer ‘definitely disagree’ or ‘moderately disagree’. The teacher was requested to provide the reason for the more positive ratings this time for item numbers 3, 4, 5, 7, and 9. Throughout teaching in this semester, she sensed that there were things that a teacher could do to help the students, even if their family

environment was not supportive. In addition, students with poor academic or behavioural performances could improve if the teacher developed appropriate instructional procedures. Having sensed the improved academic achievement of the participating class, she now believed that a teacher's influence on student learning was powerful. At that moment, her viewpoint about item number 4 (see above) changed from 'moderately disagree' to 'moderately agree'. These findings indicated that the teacher had increased efficacy about the teacher's role in general.

For the subscale Personal Teaching Efficacy, Ms. Chen rated 6 of the 17 items with the answer 'moderately agree' or 'definitely agree' and one item (number 26) with the answer 'definitely disagree'. The teacher was requested to provide the reason for the more positive ratings for item numbers 12, 15, 16, 17, 19, 20, 22, and 27. The conversation reflected improved sense in academic instruction, coping with students with disruptive behaviour, and helping students with poor academic achievement. Before the practice, she had assessed herself slightly incapable of dealing with the class. After the practice, she believed that she could manage the class in most situations. She explained that the implementation broadened her repertoire of instructional strategies and also provided her with more opportunities to practise these strategies. Having perceived student improvements, she was more confident in her teaching.

Another major improvement reported by the teacher was increased teacher-student and teacher-parent communications. She now spent a considerable amount of time with the students during class break and informal classes in an effort to know the students better. She also had contacted parents for reporting student progress and encouraging them to pay more attention to their child's study.

Besides the above-mentioned improvements, the teacher still raised concerns about teaching students with problem behaviours, in particular, those with chronic or severe problem behaviours. She explained that those students' problems were complicated. She was not sure whether the behavioural procedures she had used would work with similar problems in the future. She also was not satisfied with the outcomes

of contacting parents because she found that some parents were not responsive.

5.5.2.3.3 Summary

Ms. Chen had begun her teaching career recently. Unlike another novice teacher, Ms. Ji, she had adopted a low sense of teaching efficacy before the intervention. Overall, she viewed that the teacher played a less important role than parents in children's development. Accordingly, her belief about her personal teaching was also negative. She had many concerns about academic instruction, interacting with children with learning or behaviour problems, and establishing effective communications with students and parents. In general, she viewed herself incapable of managing a class. After the intervention, her belief about the teacher's role and personal teaching improved profoundly. She recognised the importance of the teacher's role in child development. She acquired experience and confidence in academic instruction, behavioural management, and social relationships through the implementation.

5.6 Satisfaction with the practice

5.6.1 Teacher acceptance during the implementation

Ongoing teacher feedback on their acceptance was collected in the third, fourth, and fifth PBS meetings. Each of the teachers talked about their acceptance of the procedures and outcomes, both of which are important aspects of social validation as constructed by Gresham and Lopez (1996).

5.6.1.1 From Week 3 to Week 7

All the teachers agreed that the procedures were reasonably designed and the outcomes were satisfying. By the end of the meeting, the three teachers agreed to continue the implementation. Further, they had different preferences for strategies, which reflected their own educational beliefs and instructional strategies. Among the three, Ms. Zhang had years of experience of being a homeroom teacher. One of her main responsibilities was guiding student behaviour and moral development. Thus, she preferred procedures that facilitated cognitive processes in regard to expected behaviour.

She remarked that teaching and modelling expected behaviour were the most useful procedures. It allowed her to have explicit behavioural expectations and instruction. She and the class practised and reflected on the expected behaviours regularly.

Ms. Ji and Ms. Chen were novice teachers who had limited experience of classroom management. Both had found that it was difficult to control class behaviour and create an active class climate simultaneously. If they were authoritative in managing student behaviour, the class became uninvolved in learning. On the other hand, if they tried to be relaxing and fun, including playing a game with the students or telling a joke, the class might be over-excited and lose control. The teachers hoped to develop a procedure that could result in an immediate effect of behavioural control and also maintain or increase student involvement. Ms. Ji reported frequent use of Pre-correction and Active supervision. She found the strategies were useful because the occurrence of problem behaviour was reduced during interactive activities with the class. Ms. Chen favoured token economy. She found that the entire class was motivated to learn and behave appropriately under the system.

Nevertheless, Ms. Zhang expressed some concerns about the use of material rewards. She gave the reason that “What I hope to see is that the students are also intrinsically motivated. I will be worried if they behave well only for getting the (material) rewarding”. The teacher then talked about the solution she had been trying for the previous weeks. She strengthened moral education by guiding student understanding of good behaviour from a social value perspective. “I told the class the stories of people of virtue. Introducing the view helps them to transfer the focus from material to mental.” The teacher’s hesitation in using material rewards illustrates that Chinese teachers emphasise students’ self-awareness of problem behaviour (Tian, 2013). A weakness of using material rewards on children is that it may not facilitate their cognition of problem behaviour (Alberto & Troutman, 2009). Thus, it is recommended to integrate material rewards with non-material reinforcement (e.g., praise; Simonsen, Fairbanks, Briesch, Myers, & Sugai, 2008).

5.6.1.2 From Week 8 to Week 12

The three teachers continued to express acceptance of the implementation over these five weeks. In particular, they expressed satisfaction with the CI/CO system that was developed for the secondary support. Ms. Zhang said preparation of the daily report card was simple. Since she was the teacher who met the class in the first and last lessons in a school day, it was convenient for her to collect the daily report card of the previous day and dispense the card for the new day. The three teachers reflected that rating behavioural performance on the daily report card was simple and clear. They felt comfortable carrying out the intervention. By the end of the meeting, all the teachers agreed to carry out the implementation for the rest of the semester. Ms. Zhang, who was particularly supportive of the intervention, emphasised that, “There is a necessity of having the practice for the class.”

5.6.1.3 From Week 13 to Week 16

The teachers continued to support the primary and secondary supports over these four weeks. However, they had different views about the tertiary support. Ms. Zhang acknowledged the necessity and accepted the procedure of the individualised behavioural plan for Student G. The teacher said, “I think we should teach him in this way. This is *yīn cái shī jiào* (teach a student in accordance of his or her aptitude).” Although Ms. Chen accepted the idea of the tertiary support, she was not confident in providing appropriate support to the student. Based on her conversation, the main reason for her low sense of confidence was her limited teaching experience and insufficient time. “Sometimes it took long time to teach him. And I do not know whether my instruction works for him,” she said. Ms. Ji, in contrast, was confident in providing academic support to the student, but felt that it was unfair to the rest of the class when she spent so much attention and time on one particular student. In spite of the different opinions, all the teachers were satisfied with the behavioural and academic improvements of the student. Further, they agreed to continue with the implementation.

5.6.2 Teacher acceptance after the implementation

The teachers participated in individual interviews in Week 20. The semi-structured interview protocol (see Section C of Appendix E) consisted of two aspects that were adapted from the subjective evaluation of social validation developed by Gresham and Lopez (1996). The social acceptability of procedures consisted of three questions (e.g., Which aspects of the approach do you like the most? Why? Which do you like the least? Why?). The social importance of effects consisted of four questions (e.g., Describe how well you think the approach worked).

5.6.2.1 Social acceptability of procedure

The teachers' opinions about the procedure were consistent. All stated acceptance of the design and implementation. In regards to the aspects of the approach that the teachers liked the most, two were mentioned by all the teachers. One aspect was the procedure of teaching the expected behaviour. For example, Ms. Ji said, "I like (the procedure of) teaching the students the positive and appropriate behaviours. I feel that before (the implementation) we had criticised students' (problem) behaviour too much, the students were unhappy and did not listen to us." The second aspect was the reinforcement system for encouraging demonstration of expected behaviour. All the teachers acknowledged that the system was efficacious in reinforcing the students to behave appropriately and consistently. Ms. Chen was particularly satisfied with the token economy. She said that the system could greatly motivate students to attend to academic-related activities. In addition to the two common preferences, Ms. Zhang also expressed satisfaction with treating students with differentiated levels of interventions. The teacher endorsed that an ideal schooling was teaching each student in correspondence with their aptitudes and weaknesses. She pointed out that the three-tiered supportive model was an effective way to realise this aim.

As for the aspects that the teachers like the least, all agreed that the approach was insufficient for students with severe problem behaviour. Ms. Zhang said, "The only aspect I do not like is that the approach does not fit for the most troublesome students. It

was too mild, and not forceful enough.” The teacher was asked to give a more explicit explanation for the point. She explained that the most troublesome students often displayed chronic problem behaviour. This was because they came from migrant families and the parents had not fostered proper parenting. To change the problem behaviour, it was necessary to use suppressive strategies so that the students could immediately perceive their mistake. “If the solving procedure is too positive, they will not think that the problem is serious because the teacher is not angry with them, nor punishing them.”

The other teachers held a similar view. For instance, Ms. Ji remarked:

“The approach spoils some students at some point When a student behaves well, you may praise him. However, when a student makes a mistake, I think he also needs to be criticised so that he will see his mistake. Moreover, if we always encourage the students with poor performance, those who have normal performances will think that this is not fair to them. (This is because) the improvements shown by the students with poor performance just satisfy normal requirements.”

The teachers were then asked to provide solutions for the weakness. All the teachers suggested the integration of positive and negative strategies to deal with students with severe problem behaviour. Ms. Zhang suggested, “A better application (of the approach) in this school is that encouraging and praising all the students. However, if a student still behaves badly, he needs to be seriously taught to understand the behaviour is wrong. If he improves afterwards, I will praise him.” The other two teachers’ suggestions were similar to Ms. Zhang’s.

When asked about the potential negative effects this approach might have on the students or teaching, all the teachers clearly stated that there was no negative effect. The teachers believed that the approach created a friendly classroom environment and stimulated students’ motivation, which should be endorsed by schools and families.

5.6.2.2 Social importance of effects

In regards to the question “How well you think the approach worked”, all the teachers clearly stated that the approach was useful and effective. The words “The effect is obvious” and “satisfied” were stated in each of the teachers’ responses. The teachers were then asked to describe the outcomes that they had perceived from the use of the approach in order from the most impressive outcome. Based on each of the teachers’ responses, ten types of outcomes were identified (Table 5.10).

In general, the outcomes were related to psychological and behavioural development, morality, academic achievement, social inclusion, and individual development. It can be seen that “learning motivation” and “good habit in doing academic-related activities” were in the top three or top four impressive outcomes perceived by the three teachers. Both categories corresponded to the categories of problem behaviour identified from teacher interviews before the implementation (see section 4.3.3 in Chapter Four). Despite much commonality, Ms. Zhang was more likely to perceive students’ intrinsic improvement such as emotion and value, while the other two teachers tended to emphasise the outcomes that were directly related to classroom teaching and learning.

Table 5.10: Perceived Outcomes of the Approach by Individual Teacher

Position	Ms. Zhang	Ms. Ji	Ms. Chen
1st	Learning motivation	Good habit in doing academic-related activities	Good habit in doing academic-related activities
2nd	Ability to cope with difficulties	Good habit in doing non-academic-related activities	Academic achievement
3rd	Ability to judge right and wrong	Learning motivation	Learning motivation
4th	Good habit in doing academic-related activities	Improvements on students with poor performances	Class climate

5th	Good habit in doing non-academic-related activities	In-class activeness	In-class activeness
6th	Academic achievement	Class climate	Improvements on top students
7th	NA	NA	Improvements on students with poor performances

The teachers were also asked whether they would recommend the approach to other teachers. All expressed a willingness to introduce the approach to their colleagues. The major reason cited was that the approach benefited student development and teacher instruction.

All the teachers expressed a willingness to use the approach in the future. Ms. Zhang remarked, “I will use it for sure. It is because the approach reflects humanism in education, creates pro-social climate, and assists student to form a good outlook of life and values.” Ms. Ji agreed, “Yes, I will. It is because the approach encourages students, makes students happy and confident. It is helpful to most of the students to form a good learning habits.” Ms. Chen said, “I will use the approach. It becomes a big support to my teaching. It improves student academic achievements.”

5.7 Summary

This chapter reviewed the data collected in addressing the research questions that focused on teachers’ outcomes. Question 4 questioned the extent to which the intervention had been delivered in relation to the strategies of behavioural management as planned. This was assessed explicitly by the data obtained from direct observation of the teachers’ behaviour during class instruction. The percentages of occurrence of the overall and specific strategies provided a basic account of the integrity of the intervention. The percentage of compliance with the overall and specific strategies informed the quality of the intervention.

Question 5 investigated the change in teachers’ management strategies in association with the implementation. The data obtained from teachers’ interviews at

pre- and post-implementation stages were analysed. Key themes emerged and were categorised into Positive, Negative, or Neutral forms. The themes were then compared between the two stages to demonstrate the change.

Question 6 examined the change in teachers' senses of teaching efficacy in relation to the implementation. The data obtained from the mixed interviews, which entailed completing the TES-CV, addressed the question at pre- and post-implementation stages. The analysis process consisted of quantitative analysis for the questionnaire and qualitative analysis for the narratives. The ratings from the questionnaire were compared on the basis of subscales and total score between the two stages. The teachers' narrations were classified and interpreted into themes that were compared between the two stages. The convergence of quantitative and qualitative results provided insights into this inquiry.

Question 7 explored teachers' subjective acceptance of the CWPBS practice. This was assessed explicitly by the data collected from the teachers' interviews after the implementation. The qualitative analysis was guided by the construct of the subjective evaluation of social validation developed by Gresham and Lopez (1996). The interpretations were emerged under the aspects Social acceptability of procedures and Social importance of effects.

The subsequent chapter will present a summary of the findings from the study overall, in terms of the research questions, data analysis procedures, and discussion of the findings. The chapter will then shed light on implications for practice and future research, and limitations of the study.

CHAPTER SIX DISCUSSION AND CONCLUSION

6.1 Introduction

This chapter discusses the outcomes of the study. It begins with an overview of the findings in relation to the research questions, sources of data, and analysis procedures. It outlines the students' outcomes overall and individually, as well as the teachers' outcomes. This is followed by conclusions developed from these findings. The chapter then discusses the implications for school-based interventions in primary schools in Mainland China, and potential directions for future research. This is followed by discussion of limitations of the study. The chapter concludes with a general summary.

6.2 Overview of the study

The study aimed to investigate the outcomes of the implementation of class-wide positive behaviour support (CWPBS) in a primary school in Mainland China. The general research interest contained two sub-interests, namely, student outcomes and teacher outcomes. Each of the sub-interests was broken down into a number of research questions to guide the research design, data collection and analysis. The research questions for examining the student outcomes were:

Question 1: What are the behavioural outcomes associated with the implementation of CWPBS?

Question 2: What are the academic outcomes associated with the implementation of CWPBS?

Question 3: How have students' perceptions of quality of school life changed in association with the implementation of CWPBS?

The research questions for studying teacher outcomes were:

Question 4: What is the fidelity of implementation?

Question 5: How have teachers' management strategies changed in association with the implementation of CWPBS?

Question 6: How have teachers' teaching efficacy changed in association with the implementation of CWPBS?

Question 7: What is teachers' acceptance of CWPBS?

An embedded single case study approach was used to investigate the implementation of the three-tiered support approach. Participants were 48 students and three teachers. The primary support was delivered to the entire class. Four students who did not respond well to the primary support received the secondary support. One student who did not respond well to the secondary support further received the tertiary support. The three classroom teachers completed the decision-making process and interventions with the assistance of the researcher. The three-tiered support was implemented for an entire semester (for a review of time schedule, see Table 3.2 in Chapter Three).

6.3 Overview of the findings

Rich sources of data were collected throughout the different phases of the implementation to gain an in-depth understanding of the student and teacher participants. The data analyses of student and teacher outcomes have been discussed in detail in Chapters Four and Five, respectively. The key findings from the study are revisited and discussed in relation to each of the research questions as follows.

6.3.1 Question 1: What are the behavioural outcomes associated with the implementation of CWPBS?

Data were obtained from seven sources:

1. Direct observation of two defined problem behaviours of the class.
2. Direct observation of one defined positive behaviour of four individual students.
3. Record of assignment completion.
4. Semi-structured teacher interviews about the perceived problem behaviours of the class.
5. Participant observation of PBS regular meetings during the implementation.

6. The TRF-CV questionnaire completed by the parents of the class.
7. The CBCL-CV questionnaire completed by the teachers.

Given the availability of rich sources, six main analysis procedures were used to investigate the question.

1. The teachers' reflections about the class's problem behaviours were compared between the stages of pre- and post-implementation.
2. The development of the identified problem and expected behaviours were interpreted from data drawn from time-series observation.
3. The development of assignment completion was interpreted from data drawn from the record of assignment completion in a time-series manner.
4. The teachers' reflections on class improvement were collected and analysed across intervention phases.
5. The mean scores of the CBCL-CV of the class were compared between the stages of pre- and post-implementation.
6. The scores of TRF-CV of the individual students were compared between the stages of pre-secondary support and post-secondary or post-tertiary supports.

The key findings of the behavioural outcomes of the class or individual students during and after the implementation are discussed below.

6.3.1.1 Behavioural outcomes of the class

Six major findings were evident from the data. First, fewer behavioural problems and lower prevalence rates were reported by the teachers after the implementation. In the pre-implementation interviews, in total, the teachers reported 15 problem behaviours that consisted of five categories, namely, inappropriate talking, Off-task, Assignment incompleteness, Disinterest in learning, and Not following teacher direction. More than half of the estimated prevalence rates were equal to or greater than 50%. These problems were common behavioural problems that have been reported in previous studies conducted in schools in China (Ding, et al., 2008, 2010). This means

that the issue the class had confronted was not unique in the Chinese school context. In the post-implementation interviews, in total, the teachers reported eight problem behaviours that represented four categories. There was no new problem reported at that point. Moreover, the teachers did not report problems in the category, Not interested in learning. The estimated prevalence rates of all the categories had largely decreased.

Secondly, the occurrence rates of two problem behaviours identified as the most troublesome problems in classroom instruction reduced substantially and consistently throughout the implementation. The average occurrence rate of Off-task behaviour reduced from 36% at the baseline to 4% at Intervention Phase 3. The effect size coefficient (Cohen's d) indicated large effect sizes for all implementation phases, and also an increasing trend throughout the whole practice (increased from $d = 1.2$ at Intervention Phase 1 to $d = 10.1$ at Intervention Phase 3). The average occurrence rate of inappropriate talking reduced from 14% at baseline to 1% at T3 phase. The effect size coefficient indicated large effect sizes for all implementation phases, and also an increasing trend throughout the whole practice (increased from $d = 3.0$ at Intervention Phase 1 to $d = 5.8$ at Intervention Phase 3).

Thirdly, the assignment completion percentage, which had been identified as another common problem that prohibited academic achievement, increased largely and consistently throughout the implementation. The average completion increased from 53% at the baseline to 81% at T3. The effect size coefficient indicated a large effect size for all implementation phases, and also a slight increasing trend throughout the whole intervention (increased from $d = 2.2$ at Intervention Phase 1 to $d = 2.4$ at Intervention Phase 3).

Fourthly, the teachers continuously reported behavioural improvements in the PBS meetings. The class had exhibited learning-related behaviours (e.g., in-class participation) throughout the implementation. The improvement was consistent because it had been reported in all the meetings during the implementation. In addition, the class displayed more pro-social behaviours (e.g., helping), as reflected by the teachers in

Intervention Phase 2 and Intervention Phase 3.

Fifthly, comparing the results of CBCL-CV between the stages of pre- and post-implementation indicated reductions in problem behaviour. All the subscales except the Somatic Complaints reduced after the implementation. The results of paired T-tests showed that the reduction of seven (out of 11) subscales was significant. In addition, medium to large effect sizes were found for the Thought Problems and Delinquent Behaviour.

Sixthly, the primary support worked less efficaciously on the troublesome students. In the third PBS meeting when the primary support had been implemented for four weeks, two teachers reported that some students still misbehaved during classroom instruction. According to the teachers, these students also had repeated academic failures and manifested problem behaviour for at least one semester. This finding predicted the preventative logic of a multi-tiered support. These students received the secondary or tertiary supports afterwards.

The above-mentioned findings frame behavioural outcomes of the class from different angles. The first, fourth, and sixth findings were interpreted based on the teachers' subjective evaluation during or after the implementation. Since the teachers were key stakeholders in the case, decrease of the problem behaviours and exhibition of the appropriate behaviour reflected their educational goals, and also were likely to meet the students' needs. These findings are important to the present evaluation. It is not only because they represent different aspects of behavioural improvement, but also reflects the stakeholders' values and goals (Stake, 1967, 1975).

The second, third, and fifth findings were interpreted based on objective evaluation. The second finding drew from observations of two problem behaviours across the implementation. Each of the observations was structured under an explicit protocol and conducted by two observers simultaneously. In a similar manner, the third finding drew from records of assignment completion throughout the implementation. The recording procedure was carefully undertaken by the homeroom teacher, and

cross-checked by the researcher for reliability. The result of an observation or a record itself did not suggest improvement, but the analysis of results over time determined an improved pattern. Besides, given that the teachers identified the behaviours, the findings reflected their instructional goal.

The fifth finding was associated with results of the standardised behavioural rating scale CBCL-CV. The scale has been widely used to assess children's behavioural problems as expressed by parents (Achenbach, 2010; Achenbach, et al., 2008), which is unobtrusive in regards to implementation. In addition, since the parents were not the service provider but another group of key stakeholders, this finding was useful to pattern match with the other findings such as teachers' reports of behaviour problem (Yin, 2009).

In addition, the six findings represented different temporal dimensions. The first and fifth findings regarded the entire practice as an independent variable and drew from the data collected after the termination of implementation. Thus, they confirmed that the class made behavioural improvement after they had received the entire intervention. The remaining four findings built on evidence collected while the intervention was being implemented. All except the sixth finding confirmed that the class had improved throughout the implementation. Taken as a whole, the six findings were generated from multiple sources of data. Each represented subjective or objective perspectives and inter- or post-implementation, in order to demonstrate multiple facets of the inquiry.

6.3.1.2 Behavioural outcomes of the individual students with problem behaviour

The inquiry is supported by the investigation of two embedded units of analysis. Specifically, the first four findings were interpreted from the data of the group of students who received the secondary support. The remaining four findings were from the data of the student who received the tertiary support.

First, the occurrence rate of on-task behaviour, which had been identified as the expected behaviour for facilitating individual learning, increased substantially and consistently throughout the secondary support on each of the students. The average

occurrence rate increased from 39% at Intervention Phase 1 to 97% at CI/CO with 70% criterion for Student H, 31% at Intervention Phase 1 to 86% at CI/CO with 70% criterion for Student W, and 22% at Intervention Phase 1 to 94% CI/CO with 70% criterion for Student S. Large effect sizes were found at both of CI/CO with 60% criterion and 70% criterion in an increasing trend, for each of the students. Cohen's *d* increased from 2.05 to 4.83 for Student H, 2.81 to 3.25 for Student W, and 4.32 to 6.03 for Student S.

Secondly, assignment completion, which had been reported as the expected behaviour for academic achievement, increased substantially and consistently on each of the students throughout the secondary support. The average completion percentage increased from 17% at Intervention Phase 1 to 66% at CI/CO with 70% criterion for Student H, 38% at Intervention Phase 1 to 82% at CI/CO with 70% criterion for Student W, and 0% at Intervention Phase 1 to 91% CI/CO with 70% criterion for Student S. Large effect sizes (except a medium effect size was found at CI/CO with 60% criterion for Student H) were found at both phases in an increasing trend, for each of the students. Cohen's *d* increased from 0.53 to 2.30 for Student H, 1.21 to 2.11 for Student W, and 1.30 to 13.90 for Student S.

Thirdly, comparing the results of the TRF-CV between the stages of pre- and post-secondary support indicated broad reductions of problem behaviour by each of the students. Some of the reductions were downgrades of one or two diagnostic ranges. In particular, Aggressive Behaviour and Externalising were reduced on all the individual students across the three teachers' ratings. Attention Problems, Delinquent Behaviour, and Total Problems were reduced on two of the three students across the three teachers' ratings.

Fourthly, the group displayed better behavioural performance throughout the implementation of the secondary support. In the fourth and fifth meeting, the teachers reported that the group had exhibited increasingly learning-related behaviours (e.g., assignment completion). In the fifth meeting, the teachers also reported more positive

communications between the students with peers and teachers.

Fifth, the improvement of the on-task behaviour of Student G did not sustain in the secondary support. The student increased on-task behaviour in the first week (Week 8) of the secondary support. However, the improvement did not maintain and the occurrence rate continuously decreased in the following weeks. After the tertiary support had been introduced, the occurrence rate increased substantially and sustainably. The average occurrence rate was 87% and a large effect size ($d = 4.51$) was found.

Sixthly, Student G was not responsive to the secondary support in regards to assignment completion. Little improvement had been found during the support. When the tertiary support was introduced, the student completed more assignments gradually and also maintained this at a desirable level in the last four weeks (Week 16~19). The average occurrence rate was 74% and a large effect size ($d = 2.23$) was found.

Seventhly, comparing the results of the TRF-CV between the stages of pre-secondary support and post-tertiary support indicated a broad range of reductions of problem behaviour. The Social Problems, Attention Problems, Externalising, and Total Problems were reduced across all the teachers' ratings. In addition, the levels of Thought Problems, Delinquent Behaviour, Aggressive Behaviour, and Internalising downgraded one or two diagnostic ranges on the three teachers' ratings.

Eighthly, Student G displayed better behavioural performance in the implementation of tertiary support than the secondary support. In the fourth meeting when the secondary support had been implemented for five weeks, the teachers reported that the student had made some improvements but also had unsolved problems. On one hand, the student exhibited learning-related behaviours in some situations. On the other hand, it was difficult for the student to maintain these behaviours. In addition, he had developed tantrum throwing when he had difficulties in completing the tasks. In the fifth meeting when the tertiary support had been implemented for four weeks, the teachers commented on more positive performances. The student could maintain learning-related behaviour across teachers' classes, adapt to emotional control, and he

developed positive relationships with peers and teachers.

For both of the units of analysis, multiple findings that drew from subjective or objective data and represented the inter- or post-implementation were found. Some findings were associated with investigation of specific behaviours, whereas the others provided a broad picture of the status of problem behaviours.

Considering the group that received the secondary support, the first, second, and third findings were interpreted based on objective evaluation. The first and second findings built on the time-series observations of the on-task behaviour and records of assignment completion, respectively. Rigorous observation or recording procedures, including an explicit protocol and the involvement of an inter-observer, were in place for ensuring reliability. The third finding was associated with results of the standardised behaviour rating scale TRF-CV for the individual students. The scale is the teacher's form of the CBCL and has been widely used to assess children's behavioural problem (Achenbach, 2010; Achenbach, et al., 2008). The finding indicated the change of behaviour in general. The fourth finding was interpreted based on subjective evaluation of students' performance. The evaluation was formative to suggest the development of the students' behaviour and also reflected the teachers' beliefs and expectations about the individual students. Such a pattern of multiple findings was replicated in the investigation of the student who received the tertiary support.

6.3.2 Question 2: What are the academic outcomes associated with the implementation of CWPBS?

Data were obtained from two sources:

1. Record of school achievement test results.
2. Participant observation of PBS regular meetings during the implementation

Three analytic procedures were applied to investigate the question.

1. The school achievement test results were compared between the stages of pre- and post-implementation on the class.
2. The school achievement test results were compared among three time

points on the four individual students.

3. The teachers' reflection of class improvement were analysed across implementation phases.

The key findings of academic outcomes of the class or individual students during and after the implementation are discussed below.

6.3.2.1 Academic outcomes of the class

Two key findings arose from the investigation. First, comparing the Z-scores of three main subjects, namely, Chinese Literacy, Math, and English as a Foreign Language, between the stages of pre- and post-implementation suggested that the class had made improvements on school achievement tests. More students fell into the range of positive outcomes on Chinese Literacy and English as a Foreign Language, and fewer students fell into the range of low or extremely low scores on the three subjects after the implementation. The results of the paired-sample t-tests showed significant differences in scores for Chinese Literacy and English as a Foreign Language. Small to medium effect sizes were found for the three subjects, between the two stages.

Secondly, the teachers' feedback in the third, fourth, and fifth PBS meetings suggested that the class made academic improvements once the primary support had been introduced. During the initial four weeks of implementation, the improvement was mainly concerned with the subject Chinese Literacy. As the implementation progressed, improvements in the other two subjects, including assignment accuracy and classroom quiz results had also been found.

The first finding was interpreted based on objective evaluation. The school achievement exams aimed to assess the extent of learnt knowledge that the students had attained. The exam results were also important evidence for the school to evaluate a student's performance during a certain period of time. Thus, they reflected the school expectation and learning objectives for the students. The comparison of the test results obtained before and after the implementation confirmed the improvement.

In contrast, the second finding was generated from subjective evaluation. Given

that the participating teachers were responsible for instruction of the main subjects, they had intensive contact with the class. It was likely that they were the people who knew the class the best. Moreover, since the teachers observed the students throughout their instruction, their feedback contained evidence that could not be provided by the school achievement exams, for example, the class's performance on academic tasks (e.g., assignment accuracy). The reflection was important evidence for investigating the class's performance throughout the implementation.

6.3.2.2 Academic outcomes of the individual students with problem behaviour

Four findings associated with the two embedded units of analysis were found for the investigation. Specifically, the first and second findings were interpreted from the data of the group of students who received the secondary support. The remaining two findings were from the data of the student who received the tertiary support. The subjective and objective data were collected and analysed for each of the units of analysis.

First, comparing the Z-scores and percentile ranks of the three main subjects at the early, middle, and later stages of the semester for the group suggested that the students had made improvements throughout the primary and secondary supports. In general, minor to moderate improvements were found during the primary support, whereas large improvements were found during and after the secondary support.

Secondly, the teachers' feedback about the group in the fourth and fifth PBS meetings indicated that the students had made limited academic improvements in the early phase (CI/CO with 60% criterion). The only improvement was found in the class quiz on Chinese Literacy. As the intervention progressed to the late phase (CI/CO with 70% criterion), a broader range of academic improvements, including quizzes and assignment accuracy, were found for the three subjects.

Thirdly, comparing the Z-scores and percentile ranks of the three main subjects at the three time points for Student G showed that he had made limited improvement in the primary support. Despite a moderate increase in Math, his performances in Chinese

Literature and English as a Foreign Language declined to the bottom level of the grade. However, having received the secondary and tertiary supports, he made substantial improvements on the achievement test of the three subjects.

Fourthly, the teachers' feedback about Student G in the fourth and fifth PBS meetings indicated that he had made limited academic improvement in the secondary support. The only progress was found in the class quiz and assignment accuracy in Chinese Literacy. After the tertiary support had been introduced, the student had better performance in Chinese Literacy and also made improvements on basic assignments (e.g., arithmetic, memorising) in the other two subjects.

6.3.3 Question 3: How have students' perceptions of quality of school life changed in association with the implementation of CWPBS?

The CWPBS practice is associated with the improvement of students' quality of school life. This was interpreted from the data obtained from the QSL-CV completed by the class before and after the implementation. The questionnaire has previously been used to measure primary school students' satisfaction towards school life (Ainley, et al., 1990). The mean scores of seven subscales were compared between the two stages. All the subscales were more positive after the implementation. Significant differences and medium effect sizes were found for Social Integration and Adventure. A difference that was early significant and a small to medium effect size were found for General Satisfaction.

6.3.4 Question 4: What is the fidelity of implementation?

This question was investigated by observing each of the teacher's behaviours during class instruction. Treatment fidelity refers to the extent to which the intervention was implemented as planned (Bruce & Joseph, 1998). The instructional guideline, which was developed by the PBS team, which consisted of three teachers, who were the intervention deliverers, and the researcher, who took a trainer role, contained seven strategies for promoting an effective and positive classroom management approach. The percentage occurrence and percentage compliance of a strategy and the total strategies

were calculated. The two criteria represented a continuum of two levels of fidelity. The percentage occurrence demonstrated whether or not a teacher referred to the strategies to deal with behavioural problems. This was considered the primary level of fidelity. The percentage compliance built on the occurrence of a strategy and determined the quality of action. For example, a teacher may refer to a particular strategy to deal with a problem but only partially follow the procedure of the strategy. In this case, fidelity is affected. The reviews of treatment outcome research in this field for the past ten years highly recommend the use of quantitative data for evaluating treatment fidelity for accuracy (Hagermoser Sanetti, et al., 2012).

Four findings were interpreted accordingly. First, the teachers used the desired strategies to deal with problem behaviour and promote a positive classroom climate. The average percentage occurrence of total strategies was high for each of the teachers. Similarly, the average percentage occurrence of a specific strategy was also high in most situations.

Secondly, it was difficult for the teachers to act strictly as required by the procedures during instruction. The average percentage compliance of total strategies was low for each of the teachers. Similarly, the average percentage compliance of a specific strategy was also low. In addition, each of the teachers had extremely low compliance on a couple of strategies.

Thirdly, all the teachers had low or relatively low usage of and extremely low compliance with the strategy, Opportunity for correction. Opportunity for correction is a remedial strategy designed to promote the display of appropriate behaviour after a student had received negative interventions (Alberto & Troutman, 2009). The disregard of the strategy in the present study implies that the teachers intended to maintain the coercive approach on the students who received punishment for their problem behaviour.

Fourthly, the teachers displayed differentiated usage of the strategies. Ms. Zhang made frequent use of the strategies during instruction, but had low compliance with the

guidelines. Further, she tended to use Pre-correction and Positive to negative acknowledgement in a ratio of 2:1. Pre-correction is an antecedent-based strategy consisting of a teacher's verbal (e.g., teaching expected behaviour) and/or non-verbal prompt (e.g., modeling expected behaviour; De Pry & Sugai, 2002). Positive acknowledgement is a consequence-based strategy for increasing expected behaviour, which is recommended in PBS practices (Sugai & Horner, 2002, 2009). Further, the teacher used Active supervision the least and also demonstrated extremely low compliance. Collectively, the findings imply that Ms. Zhang was active in the implementation. Her instruction emphasised students' cognition of expected behaviour and their intrinsic motivation to exhibit the desired behaviour. At the same time, she was less inclined to apply the strategies (e.g., issuing rewards) that were associated with extrinsic stimulation.

Ms. Ji used Active supervision, and showed high compliance with the procedure, to a greater extent than other strategies. Active supervision is an antecedent-based strategy that requires the performance of a teacher's overt behaviour (e.g., scanning the classroom, moving among the students) to stimulate appropriate behaviour and prevent problem behaviour among the students (Colvin, et al., 1997). Thus, the teacher preferred making her physical presence known to the class. The teacher used Actively engaging students with academic-related tasks, which is another antecedent-based strategy, in relatively high compliance with the guidelines. When problem behaviour occurred, she tended to use consequence-based strategies. She had been in compliance with the procedure for reducing problem behaviours, meaning that she started with the use of the lowest negative strategy (e.g., verbal reminding) and then moved to more intensive negative strategy (e.g., time-out). These findings entail a two-fold instructional style. On one hand, the teacher was active in prompting expected behaviour before the occurrence of problem behaviour. On the other hand, she was active in suppressing occurrence of problem behaviour.

Ms. Chen used Active supervision and Actively engaging students with

academic-related tasks in every classroom instruction. In addition, she had high compliance in the use of Actively engaging students with academic-related tasks. The strategy is an antecedent-based strategy that requires a teacher to actively engage the students in academic-related events (e.g., inviting a student to answer an interesting question), which is a common strategy used by primary school teachers in China to prevent classroom problem behaviour (Zhang, 2008). Further, she demonstrated low use of and low compliance with Pre-correction and Positive to negative acknowledgement in a ratio of 2:1. These findings imply that Ms. Chen favoured using extrinsic stimulators to direct students' appropriate behaviour. In particular, she tended to engage the class with varied learning tasks to prevent their problem behaviour.

6.3.5 Question 5: How have teachers' management strategies changed in association with the implementation of CWPBS?

The CWPBS practice was associated with the improvement of teachers' management strategies. This question was investigated by interviewing the teachers about their management strategies in relation to classroom problem behaviour before and after the implementation. The reflected strategies were classified 'positive', 'negative', or 'neutral'. Two findings were interpreted, based on comparison of the strategies reported by the teachers between the two stages.

First, the teachers' management strategies became more positive after the implementation. Before the implementation, the teachers tended to use negative strategies for classroom management. In total, only 30% of strategies were identified as positive. In particular, positive strategies took up 25% and 33% of the overall strategies in Ms. Zhang and Ms. Ji's repertoires to solve classroom problem behaviour, respectively. Ms. Chen did not report any positive strategies. After the implementation, 55% of strategies in total were identified as positive. Positive strategies took up 83%, 50%, and 60% of the overall strategies in Ms. Zhang, Ms. Ji, and Ms. Chen's repertoires, respectively. In addition, Ms. Chen did not report any negative strategies.

Secondly, the teachers' management strategies became more consistent after the

implementation. Before the implementation, in total, only four strategies (20%) were referred by two of the teachers, none of which were positive. This indicated that the teachers used to have different procedures for behavioural management, which were largely inconsistent (Lewis & Newcomer, 2002; Sugai & Horner, 2006). After the implementation, six strategies (55%) were reported by at least two of the teachers, among which two (18%) were reported by all the teachers. This suggested that the teachers tended to use similar strategies, and thus their behavioural management styles were more consistent.

6.3.6 Question 6: How have teachers' teaching efficacy changed in association with the implementation of CWPBS?

The CWPBS practice was associated with an increment in teachers' sense of teaching efficacy. This question was investigated by interviewing the teachers about their sense of teaching efficacy before and after the implementation. The interview was an intra-method mixed interview that consisted of completion of the TES-CV questionnaire and provision of explanations for some answers from the questionnaire. Two findings were interpreted based on comparison of the data between the two stages.

First, all the teachers had increased scores on the General Teaching Efficacy, Personal Teaching Efficacy, and Total Teaching Efficacy after the implementation. Moreover, Ms. Ji had improved from a medium level to a high level, and Ms. Chen had changed from low level to medium level on the General Teaching Efficacy, Personal Teaching Efficacy, and Total Teaching Efficacy.

Secondly, all the teachers had perceived the general teacher role and/or the self as a teacher more efficaciously after the implementation. Ms. Zhang had adopted a high level of general and personal teaching efficacy before the practice. She perceived the critical role played by a teacher in a child's development and also saw herself as capable to teach the students. After the implementation, her sense of teaching efficacy was stronger. She considered herself competent in dealing with all kinds of students, including students with disruptive behaviour.

Before the implementation, Ms. Ji's sense of general and personal teaching efficacy were positive but immature. She could not see individual differences, and posited that all the students should be taught with the same procedures. The teacher thus had encountered instructional difficulties and also developed weak relationships with the students. After the implementation, her belief about the teacher's role and personal teaching efficacy improved. She accepted the importance of identifying students' needs individually, and considered differentiated procedures for the students. She also had more frequent and proactive communication with the students, which enhanced her understanding of them.

Ms. Chen had adopted a low sense of general and personal teaching efficacy before the implementation. She viewed the teacher as playing a less important role than parents in children's development. In particular, she posited that a teacher was unlikely to change a student if the parents were not supportive. Accordingly, her belief about her personal teaching was also negative. She had many concerns about academic instruction, interacting with children with learning or behaviour problems, and establishing effective communications with students and parents. Overall, she viewed herself as incapable of managing the class well. After the implementation, her belief about the teacher's role and her personal teaching changed to positive. She perceived the importance of the teacher's role in a child's development. She acquired experiences and confidence in academic instruction, behavioural management, and social relationships through the implementation.

The two findings triangulate with each other. The first finding was generated from the comparison of the TES-CV scores between the two stages. It showed the extent to which the teachers' senses of General teaching efficacy, Personal teaching efficacy, and Overall teaching efficacy had increased. The second finding was interpreted from each of the teachers' explanations for inconsistent ratings between the two stages. It provided insight into the aspects (e.g., teacher-student communication, teaching effectiveness) in which the teachers had sensed improvement. Thus, it

excluded the possibility that the increased extent of the teachers' sense of teaching efficacy was caused by external factors (e.g., parenting factor).

6.3.7 Question 7: What is teachers' acceptance of CWPBS?

This question was investigated by asking the teachers to reflect on their satisfaction with the intervention during and after the implementation. The teachers talked about their general satisfaction with the procedures and outcomes in the third, fourth, and fifth PBS meetings. After the implementation, the teachers were interviewed based on three aspects of social acceptance, namely, Social significance of goals, Social acceptability of procedures, and Social importance of effects (Gresham & Lopez, 1996). Interviews about the Social significance of goals were undertaken before the implementation, which was included in the interview of teachers' general reflections about the class's problem behaviour. Interviews about the other two aspects were conducted during and after the implementation. The findings were interpreted based on the responses to the Social significance of goals and were used to triangulate with the finding of the Social importance of effects.

Six findings were interpreted accordingly. First, the goals of implementation were considered socially valid for the teachers. Gresham and Lopez (1996) argued that the pivot of social significance of goals was the functioning of targeted behaviour. The behaviour "must be functional (habilitative) in allowing the client to adapt to the demands of the school environment" and also "includes both short-term and long-term benefits and costs" (p. 211). For this purpose, the identification of targeted behaviours in the present study was a key task of the PBS meeting. The participating teachers with the support of the researcher (as the trainer) identified the problem behaviours that had functional relationships with children's academic achievement or social inclusion. Such a process ensured that the targeted behaviour would satisfy the teachers' needs and also help to improve learning or socialising. In order to facilitate the intervention to realise short-term and long-term benefits, these behaviours had been characterised as common or troublesome problem behaviours in advance. For instance, the common and simple

problem behaviours were targeted primarily so that the students and teachers could benefit easily and also to re-build their confidence in schooling. Furthermore, these short-term goals were aligned with the continuum of supports that focused on the sustained improvement and benefits for life change.

Secondly, the teachers expressed overall satisfaction towards improved students' performance procedures during the implementation. The teachers' satisfaction with the procedure was collected from three PBS meetings held during the implementation. In particular, they highly agreed with the intervention in the primary support stage. They also felt comfortable to carry out the secondary support stage. For an overview of teachers' reflections on students' outcomes, see sections 6.3.1 and 6.3.2.

Thirdly, after the implementation, the teachers expressed high acceptance of providing pro-active and positive interventions to the class, which was the main responsibility of the primary support. The aspects most appreciated by all the teachers were teaching and encouraging expected behaviour and a reinforcement system for expected behaviour. The strategies were two of the elements of primary support designed to promote expected behaviour and a pro-social climate for the class.

Fourthly, the teachers had relatively low acceptance of the tertiary support, compared with their acceptance of other elements of the implementation. Such an attitude was found in their comments during and after the implementation. In the fifth PBS meeting, Ms. Chen talked about implementing the tertiary support with a low level of confidence, though she agreed with the conceptual framework. Ms. Ji felt it was unfair to provide intensive support to the individual student because such an intervention had taken a great amount of time and effort from her.

After the termination of implementation, all the teachers pointed out the least appreciated aspect was providing a continuum of positive interventions to the students with problem behaviour. They disagreed with the behavioural procedure that started with positive interventions, including re-organising the environment and pre-correction, for the students who had exerted serious or chronic problem behaviour. They asserted

that use of continuous positive procedures in the situation had limited effect in prompting students' self-awareness of their mistake. In addition, they believed that the procedures affected educational equity. Given a large class size with one teacher to teach at a time, it was also possible that the teachers had a desire to terminate disruptive behaviour immediately to minimise its influence on other students and instruction. As an alternative solution, they proposed a three-step procedure. First, they proposed using suppressive strategies to discontinue the behaviour. The second step involved waiting for the students to realise their mistake. Finally, if the students started behaving well, they would use the positive strategies to reinforce the appropriate behaviour.

Fifthly, the perceived outcomes corresponded to the problems reported by the teachers before the implementation. The teachers had perceived multiple outcomes associated with students' psychological and behavioural development, morality, academic achievement, social inclusion, and individual development. The outcomes "learning motivation" and "good habit in doing academic-related activities" were among the most important effects, as reported by the three teachers.

Sixthly, the teachers agreed to use the approach in the future, as well as recommend the approach to other teachers for classroom management.

6.4 Conclusion

This study was designed to investigate students' and teachers' outcomes associated with the implementation of CWPBS. Students and teachers are the two most important stakeholders in classroom instruction. Teachers deliver lessons and other educational services to students; meanwhile, students learn and practise for personal development under the guidance of teachers. The two groups are interactive and mutually influential. In this sense, evaluating a class-based practice needs assessment of the outcomes from both groups. If the practice is efficacious, it should be beneficial to both the students and teachers. From the perspective of SWPBS, social validity determines the implementation sustainability and locates at the core of internal validity (Dunlap, et al., 2008). Thus, it is essential to understand the perceptions of those who

have implemented the practices (Vaughn, et al., 2000).

In this study, student outcomes were investigated through three aspects, namely, behavioural improvement, academic performance, and students' sense of quality of school life. Teachers' outcomes were investigated from four aspects, namely, treatment fidelity, management strategies, sense of teaching efficacy, and their acceptance of the approach. The key arguments generated from the findings of this study are presented and discussed in the following sections.

6.4.1 The behavioural outcomes suggest that the implementation of CWPBS is associated with behavioural improvement of the students

Given that the foundation of PBS is behavioural science (Carr, et al., 2002; Dunlap, et al., 2008), one of foci of the CWPBS implementation was students' behavioural change under the guidance of a continuum of three-tiered support. In the practice, the PBS team provided three tiers of interventions to the class. In the Intervention Phase 1, the class of 48 students received the primary support for four weeks. In the third PBS meeting, four students were selected to receive the secondary support due to their low level of responses to the primary support. The secondary support was layered onto the primary support for 12 weeks, which formed the Intervention Phase 2. In the fourth PBS meeting, one student was selected to receive the tertiary support due to his low level of response to the secondary support and his tantrum-throwing problem. This support was layered onto the secondary support for seven weeks, which formed the Intervention Phase 3.

Multiple assessments of behavioural performance were available and analysed. Overall, the class made a substantial and steady decrease in inattentive behaviour and inappropriate talking and a substantial and steady increase in assignment completion. The teachers perceived improved learning-related behaviour and pro-social behaviour during the implementation. By termination of the implementation, they reported less problem behaviour in relation to category and prevalence rate, compared with the report before the implementation. The parents' rating of their child's problem behaviour (the

CBCL-CV) showed reduction in all subscales (except Somatic Complaints). More than half of the categories were significantly lower. Collectively, these findings justify the argument based on the class level. Considering the entire class as a unit, the practice was beneficial to all the students.

In a classroom context, some students may have manifested problem behaviour or severe or chronic problem behaviour. The framework of SWPBS suggests that 15% of the student population has developed some behavioural problems that puts them at risk of academic or social failure, and 5% has developed to more serious conditions that are maladaptive to the environment (Sugai, et al., 2000b). These students are “troublemakers” in the mind of teachers and peers. They are often the main targets in a teacher’s behaviour management, occupy a great amount of a teacher’s effort, and become a major reason for teacher frustration.

In this study, the PBS team identified four students who had been at risk of repeated academic failures and peer isolation due to manifested problem behaviour. The secondary support involved the CI/CO system (Todd, et al., 2008) and group contingency (Theodore, et al., 2009) to create a system with targeted behavioural goals and frequent feedback. The group showed immediacy of effect on on-task behaviour and completed more assignments after the introduction of the secondary support. The behaviours sustained throughout the entire support. The teachers also reported the display of more appropriate behaviours as the intervention progressed. By the time termination of CWPBS implementation, the teachers’ rating of problem behaviour (the TRF-CV) showed substantial reduction of problem behaviour in relation to category and severity. These findings suggested that the group had made behavioural improvements that facilitated their daily functioning in the secondary support.

The reason for assigning Student G into an individualised behavioural plan (tertiary support) was that he had difficulty in adhering to expected behaviour and also started showing aggressive behaviour during the secondary support. The tertiary support was in place to cater for the student with intensive and personalised intervention. After

the introduction of tertiary support, the student made a substantial and steady increase in on-task behaviour and assignment completion. The teachers also reported that the student had exhibited more appropriate behaviours and maintenance across different class instruction. By the time termination of CWPBS implementation, the teachers' rating of the TRF-CV showed substantial reduction of problem behaviour in relation to category and severity. Taken together, these findings suggested that the student had made behavioural improvements, including learning-related behaviour, emotional control, and socialising, in the tertiary support.

The different improvement patterns found from the two units of analysis to further support the argument. Taken as a whole, students who had different educational needs could improve substantially and sustainably given the continuum of multi-tiered supports. It can be seen that there were improvements at both the class and individual levels. Thus, the implementation of CWPBS was associated with behavioural improvements of a diverse group of students in the classroom. A vast majority of PBS studies employ single or multiple baseline designs for behaviour assessment (O'Dell, et al., 2011), as did this study. In this study, substantial and steady improvement of the targeted behaviours was found for the entire class, and for students with problem behaviour or more severe problem behaviour. These findings confirm previous studies conducted in western contexts (e.g., Kamps, et al., 2011; Lane, et al., 2007; Lohrmann & Talerico, 2004; Todd, et al., 2008). Given that the case study design allows for an in-depth and multi-faceted investigation, other evidence such as teachers' descriptive assessment and behavioural rating scales triangulated with the findings from the observations. The converging finding adds to previous studies that employed multiple evidence (Shogren, Lang, Machalicek, Rispoli, & O'Reilly, 2011; Turnbull, et al., 2002).

6.4.2 The academic outcomes suggest that the implementation of CWPBS is associated with academic improvement of the students

Given that academic achievement is one of the most important goals of

schooling, a behavioural intervention should be aimed at facilitating such a goal (Lewis, et al., 2010; Sugai & Horner, 2009). In this study, objective and subjective assessments of academic performance were conducted for the entire class and individual students with problem behaviours.

At the class level, the school exam results of Chinese Literacy and English as a Foreign Language were significantly higher at the post-implementation than at the baseline. Although the increase of the Math score was not significant, it suggested a positive trajectory. As for the subjective evaluation, the teacher of Chinese Literacy reported improved outcomes on academic tasks following the primary support. Improvements were reported by all the teachers across the three main subjects as the implementation progressed.

The students who received the secondary support had minor to moderate increases in their school exam results in the primary support. The increases were sustained in the secondary support and reached to a higher level after the termination of CWPBS implementation. The teachers' subjective evaluation suggested a broad range of academic improvements, but most were displayed in the late phase of the secondary support.

The individual student who received the tertiary support made limited progress in the achievement exams while receiving the primary support. Having gone through the secondary and tertiary supports, the student then made substantial gains in the school achievement exam results. In particular, his score in Chinese Literacy on the final exam was higher than 84% of the students in the same grade. Furthermore, the teachers' feedback about his academic performance revealed that most of his improvements occurred in the tertiary support.

It can be seen that the improvement occurred at both the class and individual levels, with the individual students' achievements being more obvious. The findings converge on the point that the CWPBS practice in this study is associated with the academic improvements. A great number of evaluative studies in this field assessed

academic outcomes and demonstrated improvements on achievement tests and assignment accuracy (Lassen, Steele, & Sailor, 2006; Mitchell, et al., 2010; Turtura, Anderson, & Boyd, 2014), for students at the universal, group, or individual levels (Eber, et al., 2012; Lohrmann & Talerico, 2004; Mitchell, et al., 2010). Overall, the studies suggest that the implementation of SWPBS creates a positive environment and promotes readiness of a diverse group of students for academic learning and achievement. The findings of the present study are in alignment with the previous studies. Both the class and four individual students made considerable improvements in school achievement exams and other forms of academic tasks during and after the implementation. Achievements on these tasks were important for students' development, as considered by the teachers and school administration.

6.4.3 It is suggested that the implementation of CWPBS is associated with an increment in students' sense of quality of school life

Students' sense of quality of school life reflects their affective outcomes for different aspects of schooling (Epstein & McPartland, 1976; Williams & Batten, 1981). The PBS endorses quality of life as the ultimate goal (Carr, et al., 2002). A sound school-based intervention should be positive and sustainable to benefit a student's quality of school life.

This study measured the students' sense of quality of school life, building on the construct of Williams and Batten's QSL (1981). The students were statistically more positive in their Social awareness and Integration, as well as more motivated in learning after the implementation. Although significant difference was not found for the remaining subscales, the outcomes were encouraging. Given that quality of life changes gradually (Carr & Horner, 2007), it is likely that more increments would occur if the data collection lasted for a longer period. The current findings confirm and support previous research in the field of PBS (e.g., Clarke, et al., 2002; Dunlap, et al., 2010a; Kincaid, et al., 2002).

6.4.4 It is suggested that the implementation of CWPBS is associated with enhancement of teaching strategies

A fundamental distinction between traditional behavioural management and PBS is the use of instructional strategy. The former uses negative strategies to suppress a problem whereas the latter uses positive strategies to prevent the problem (Murdock, 2007). Moreover, Hieneman and Dunlap (2001) argued that practising SWPBS enhances the use of positive strategies among teachers.

The findings in this study support the argument from two aspects, namely, intra-personal use and inter-personal use of management strategies. First, a change from a negative strategy dominant style to positive strategy dominant style was evident for each of the teachers. This implied that the implementation has improved their intra-personal use of management strategies. The individual teachers tended to use positive strategies for preventing problem behaviour and promoting classroom learning. Secondly, a change from an inconsistent style to a consistent style of classroom management among the teachers was evident. More than half of the strategies were reported simultaneously by at least two teachers. This suggested that the implementation enhanced the inter-personal use of management strategies. The teachers were likely to adapt to coherent procedures for classroom management. These findings add to the research on teacher outcomes of SWPBS in that high implementation is associated with improved positive instruction (Conroy, Sutherland, Vo, Carr, & Ogston, 2014; Stichter et al., 2009).

6.4.5 It is suggested that the implementation of CWPBS is associated with an increment in teaching efficacy

The importance of teachers' beliefs about their own abilities to influence students' performances has been previously established (Ashton, 1984; Gibson & Dembo, 1984; Tschannen-Moran & Woolfolk-Hoy, 2001). The expanding research body of SWPBS has increasingly regarded teaching efficacy as an important social outcome. In theory, SWPBS and teachers' sense of teaching efficacy are mutually supportive. Previous studies have demonstrated a positive association between SWPBS

and teachers' sense of teaching efficacy (Ross & Horner, 2007; Ross, et al., 2011). The findings of this study are in alignment with previous research. All the teachers had higher scores on the General Teaching Efficacy, Personal Teaching Efficacy, and Total Efficacy scores after the implementation. In addition, all the scores fell into the positive range (> 3).

Based on analysis of teachers' explanations for their answers, this study uncovered varied aspects from which different teachers had sensed improvement. The homeroom teacher who had attained a high level of teaching efficacy held more confidence in the role of the teacher in students' development. She also felt herself more competent in dealing with students with serious problem behaviour. The teacher of Math who had developed a positive but immature teaching belief was able to identify individual needs and design coherent instruction. The teacher of English as a Foreign Language had a low sense of teaching efficacy before the implementation. She then enhanced her teaching efficacy drastically, in relation to academic teaching, behavioural management, and social relationships. These findings add to the argument, suggesting that implementation of the CWPBS benefits teachers who have different self-judgments about their teaching efficacy.

6.4.6 The teachers demonstrated a complex pattern of treatment fidelity

The procedure of a socially valid intervention should be practical to the intervention deliverer (Carr, et al., 2002; Gresham & Lopez, 1996). Without minimal fidelity, it is hard to determine the efficacy or effectiveness of an intervention. High fidelity facilitates the effectiveness, whereas, low fidelity is associated with low implementation and poor outcomes (Kincaid, et al., 2007; Simonsen, et al., 2012). Reviews of school-based intervention studies over the past two decades (Hagermoser Sanetti, et al., 2012; Hagermoser Sanetti, Gritter, & Dobey, 2011) reveal that a majority of teachers had low treatment fidelity (range from 0 to 65%), especially when they do not have access to assistance or feedback (e.g., Bruce & Joseph, 1998).

The present study can be considered as having high fidelity in using the

expected strategies. The average percentage occurrence was 82%, 77%, and 79% for Ms. Zhang, Ms. Ji, and Ms. Chen, respectively. There are probably four reasons accounting for this fidelity. First, regularly held PBS meetings increased opportunities for feedback and discussion, which is likely to maintain teachers' motivation in implementation. The positive relationship between constant feedback and teachers' fidelity has been well established in school-based research (Bruce & Joseph, 1998; Noell & Gansle, 2014; Noell, Witt, Slider, & Connell, 2005). Secondly, the participating teachers had put forth effort in developing intervention plans. Gresham and Lopez (1996) argued that teachers' involvement in intervention development would promote their buy-in. Thirdly, Chinese teachers place a much higher emphasis on pre-design and compliance of an instruction, including the sequences, language and other actions than do western teachers (Cai, Ding, & Wang, 2014). They incorporated the intervention plan into their lesson plans, which resulted in high occurrence of the strategies. Fourthly, the vast majority of studies selected by the above-mentioned reviews were undertaken in western contexts. Thus, they may not cast the school-based interventions in China very well.

Assessing treatment fidelity needs a more complex design when an intervention is carried out in school contexts that may involve multiple settings and actors (Hagermoser Sanetti, et al., 2012; Hagermoser Sanetti, et al., 2011). Given that the CWPBS was a new practice in the school and implemented by three teachers responsible for varied subjects, the percentage occurrence and percentage compliance were both measured and analysed. The percentage compliance built on the occurrence of strategies as planned, which was intended to inform the quality of fidelity. The larger the percentage meant the closer resemblance between the implementation and plan.

It is argued that Chinese teachers may demonstrate fidelity in a complex manner. This argument is associated with three findings. First, the teachers had differentiated patterns of implementation. Each of the teachers in the study had used some strategies with high compliance more than other strategies, implying that they had preferences in behavioural strategies. It is also likely that treatment fidelity is influenced by factors

such as educational belief, teaching experience, and physical environment (Hieneman & Dunlap, 2001).

Secondly, teachers had a much lower level of compliance with the explicit procedures as planned than the level of occurrence of the strategies. The average percentage of compliance was 28%, 46%, and 42% for Ms. Zhang, Ms. Ji, and Ms. Chen, respectively, each of which was much lower than the related percentage occurrence.

Thirdly, Chinese teachers may not offer an opportunity for correction to students with problem behaviour immediately after using negative strategies. In the study, all the teachers demonstrated low use of the Opportunity for correction, implying that they tended to maintain the coercive approach for students who displayed serious problem behaviour. This further reflects Chinese teachers' belief about classroom management in that students are responsible for misbehaviour (Ho, 2004).

Taken as a whole, the investigation on treatment fidelity led to the conclusion that the teachers were active in using the guideline, but the implementation involved various styles. It is possible that treatment fidelity is influenced by factors such as teaching belief and habit. When the implementation was in alignment with the factors, the teachers were likely to have high utility and compliance. In contrast, when the implementation was confronted with negative factors (e.g., limited time) or was different from the teaching beliefs, the teachers tended to have low compliance with or low utility of the plan.

6.4.7 The teachers consistently expressed high acceptance about CWPBS, except providing a continuum of positive intervention to students with severe problem behaviour

Teachers' subjective acceptance plays a key role in social validity (Wolf, 1978). It is important to understand teachers' opinions about the practice. Without their minimal acceptance, it is difficult to judge that the CWPBS practice would continue to be used. This inquiry investigated the teachers' "*subjective judgments* of goals,

procedures, and outcomes” (Gresham & Lopez, 1996, p. 206).

The teachers in the study had consistent opinions about the practice. In general, they expressed high satisfaction towards the implementation and intention of utility in their future instruction. In regards to the judgment of goals, the teachers played the role of decision-maker in the practice. They identified the targeted behaviour, established the intervening goals, and decided the assessment criteria. The goals were in alignment with their educational values and instructional expectations for the class.

As for the judgment of outcomes, the teachers perceived improvements associated with students’ behavioural, academic, and social development. Some of the outcomes (e.g., good habit in doing academic-related activities) were directly related with the implementation goal. The teachers also expressed contentment with the outcomes and willingness to use the approach in the future. Furthermore, these outcomes were congruent with the general educational expectations in Chinese context whereby students are expected to be self-disciplined and self-reflective (Ho, 2004).

The teachers’ acceptance of the procedure was two-fold. On one hand, they highly supported the procedures for creating active learning and a pro-active class climate. On the other hand, they were less agreeable to offer intensive support to students with serious problem behaviour. The pattern of acceptance was congruent with the findings of treatment fidelity in that all the teachers showed frequent use of strategies of preventing misbehaviour (e.g., Actively engaging students with academic-related tasks, issuing rewards) but showed low use of the Opportunity for correction (see also section 6.3.4). It also implies that Chinese teachers feel more responsible for creating a positive learning environment for students as a whole class rather than providing specialised intervention for individual students’ behaviour.

The alternative procedure to a continuum of positive interventions (see 6.3.7) further suggests a two-fold behavioural management style held by Chinese teachers. On one hand, the participating teachers held the traditional belief (Ho, 2004) that students were responsible for their misbehaviour in classroom. Thus, it was important to the

students to perceive their misbehaviour and understand the consequences (e.g., disturbing a class, being blamed by others; Tian, 2013). The first and second steps proposed by the teachers served such a purpose. On the other hand, the teachers were aware that positive strategies were efficacious in motivating appropriate behaviour and benefiting students' emotion. This may be because these teachers had perceived behavioural improvement throughout the CWPBS implementation. This behavioural management style implies that Chinese teachers tend to integrate new strategies with their current teaching style.

Overall, the teachers' subjective acceptance of the approach suggests a positive and complex pattern. The goals had met their expectation, most of the procedures were acceptable and practical, and eventually the outcomes were associated with the goals. Having experienced the full implementation, they agreed to continue the practice and recommended it to other teachers. On the other hand, their disagreement of providing a continuum of positive interventions to students with severe problem behaviour may lead to future use of negative strategies.

Sophistication in teachers' acceptance of SWPBS is also not uncommon in western contexts. The research body has demonstrated that western teachers may have overall satisfaction with implementation but subtle disagreements with specific strategies (Briesch, Briesch, & Chafouleas, 2014; Frey, Park, Browne-Ferrigno, & Korfhage, 2010) or adaptation to particular contexts (Chafouleas, Riley-Tillman, & Sassu, 2006).

6.5 Limitations

A number of limitations should be noted before proposing implications for practice and future research. These limitations are concerned with the context, research design, and data collection. First, the study was conducted in classroom settings, which could not control the variables of non-classroom contexts. For instance, the students may show greater behavioural improvement if the implementation were extended to canteen and playground. This is because that they would have more opportunities to

practise the adapted behaviour and could receive more active supervision from more teachers. It is also possible that the students behave less desirably if more contexts are involved in the implementation. For example, some students may show more off-task behaviour during the flag-raising ceremony because in the playground they may be more likely to be distracted than in the classroom. Although the challenge is common in the single case study research, future research should be designed to enhance the comprehensiveness of the evaluation by implementing the procedures and assessing the outcomes in both classroom and non-classroom contexts.

Secondly, this study investigated students who received the interventions and teachers who implemented the practice. Although comparison of the data collected before, during and after the implementation suggested changes in students' and teachers' outcomes, the study could not determine the differences between the participants and those who had not taken the intervention. Future research should attempt to compare classrooms with and without CWPBS to enhance the evaluation and understanding of implementation.

Thirdly, given that reversal designs (e.g., A-B-A-B) of interventions were not adopted, the functional relationships between independent variables and dependent variables, including the primary support and the targeted behaviours of the class, the secondary support and the group of students, and the tertiary support and the individual student, may be less reliable. The reason for excluding reversal designs was the present study was based on a naturalistic situation (i.e., day-to-day classroom instruction), a reversal design would not be accepted by the teachers, the school, or the parents. Two remedies were used for compensate for this limitation. Firstly, both quantitative and qualitative data were collected. Interpreting these data requires a process of triangulation to validate these data (Creswell, 2007; Johnson & Turner, 2003; Merriam, 1988; Patton, 1990). Second, an increasing-intensity design, which is from baseline (A), to CI/CO with 60% criterion (B), and increased to CI/CO with 70% criterion (B'), was adopted. Increasing intensity design (A-B-B') is particular useful for the situation where

a reversal design (e.g., A-B-A-B) is not suitable or possible (Barnett, Daly, Jones, & Lentz, 2004) and has been adopted in classroom interventions for students with problem behaviour (Fairbanks, et al., 2007; Hofstadter, 2007).

Fourthly, given that the three teachers displayed lower levels of compliance in their usage of the desired strategies, it is possible that students' and teachers' outcomes were affected. Whilst it was not the interest of the current study to compare outcomes between high and low treatment fidelities, western literature (Frey, et al., 2010; Reinke, et al., 2013) has reported that SWPBS implementations with high treatment fidelity can result in better student and teacher outcomes. In this sense, it is also likely that if the teachers in this study had performed better levels of compliance, the students might have displayed better behavioural, academic, and emotional outcomes, so as to teachers' sense of teaching efficacy.

Fifthly, given that the school achievement tests were a part of school teaching rather than for research purpose, the marking process did not involve inter-scorers to ensure their reliability. However, school administrators carefully organised and monitored the process to protect privacy and fairness. Before marking, teachers were trained for agreement of acceptable responses and appropriate scores. During marking, teachers stayed in a large meeting room to have a uniform and non-distracted environment, students' names were kept unidentified, and marked papers were randomly checked by the test designers for reliability. Future research should be considered to employ multiple and independent marking. For example, all scripts could be marked by at least two independent markers. Neither marker should know how the other has marked a test paper.

Sixthly, assessment of treatment fidelity had some pitfalls. The fidelity was measured only during classroom observations, which did not necessarily indicate teachers' performance throughout the day. Thus, how well a teacher was implementing an intervention for the students who received the secondary or tertiary supports during class break was unknown. Future research needs to include fidelity assessment across

settings and throughout a school day. For this purpose, instruments such as the adaptation of the EBS Self-Assessment Survey (Fallon, McCarthy, & Hagermoser Sanetti, 2014) and Classroom Ecology Checklist (Reinke, et al., 2013) that have been used to assess the implementation of class-based practices may also be employed, once they have been culturally validated.

Seventhly, given the limitations of the research schedule, this study did not include a follow-up phase for assessing the outcomes. Thus, the study did not determine whether students and teachers maintained the improvements after the data collection. Future study should be designed to involve one, three, six, and twelve months' follow-up assessments.

Eighthly, this study was not designed to evaluate the outcome of each implemented intervention, but rather to assess the outcome of SWPBS approach to classroom level behavioural support. Although individual interventions (e.g., differentiated task) or the group interventions (e.g., CI/CO) were features of the implementation, statements about the intervention procedures, decision rules, monitoring, and adaptations should not be inferred from this study.

Finally, due to the small number of participants recruited, the measured outcomes are descriptive. Furthermore, the statistical results may be less inferential to the general population, even though these statistic results were adding support to the qualitative data. Once SWPBS has been implemented in more schools in China, future study should be designed to include a larger sample size of participants.

6.6 Implications

This study aimed to learn about students' and teachers' outcomes associated with an implementation of CWPBS approach. Given the fact that SWPBS had not been introduced to school management in Mainland China, this preliminary study produced an evidence-based report in the form of a case study. The following sections present ideas for practice and future research that emerge from the overall thesis.

6.6.1 Implications for practice

A primary focus of this study was to evaluate the CWPBS practice based on outcomes of key stakeholders in the general classroom context. The study has practical implications for school-based behavioural management in China.

6.6.1.1 Applicability of SWPBS in primary school context in China

This study has positive implications for the use of a multi-tiered behavioural management system organised by a decision-making team. It supports the establishment of a routine system, to promote teaching and learning, and create a pro-social climate in primary schools in mainland China.

Although some elements of this approach are not new to Chinese teachers, they may not fit with the traditional classroom management. For instance, managing a class through routine establishment is a key strategy to homeroom teachers in China (Yao & Chen, 2008). As discussed in the beginning of the thesis, Chinese teachers endorse class discipline as a foundation of successful learning. Therefore, they expend much effort to maintain an orderly class. Another reason for emphasising routine is class size. Given that Chinese schools normally have large class sizes, it is important to develop rules to ensure the equity of every student for receiving educational services. However, routine systems that foster uniform requirements and emphasise egalitarianism in Chinese classrooms lack diversity (Yao & Chen, 2008). Often, moral expectations (e.g., be a good student) are too generic, and lack specificity and methods. While these “basic” requirements are practicable to a majority of students, they become hurdles to those who are maladaptive to the school environment. Further, Chinese teachers work hard to foster learning environments that facilitate knowledge acquisition and practice. However, in order to maintain the environment for the majority, they tend to neglect or suppress the special needs of the minority (Tian, 2013; Zhang & Shen, 2007). These may cause polarisation of students with normal behaviour and those with problem behaviour, and eventually marginalise the latter.

Despite the attitude and strategies, Chinese teachers encounter pressures caused

by internal and external factors. Internally, students' problem behaviour increases their working load. At the same time, having unsatisfactory outcomes decreases their teaching efficacy (Jiang, et al., 2012; Tang, et al., 2009). Externally, the legislation and broad social context expect them to educate all students to all-round development without using punishment (see Education Law, Compulsory Education Law, and Teachers Law of the People's Republic of China; Ministry of Education of People's Republic of China, 1995, 2006, 2009). Hence, the traditional classroom management, or the "one size fits all" strategy undertaken by individual teachers is far from being enough to solve the difficulties and manage the class well. In contrast, the SWPBS unites all teaching staff in a school and external professionals (e.g., psychological counsellor, behavioural therapist) to build a school-based system that can be used consistently and is applicable to all the sub-contexts. This minimises the pressure on individual teachers in dealing with unsolved problems.

SWPBS also embraces an inclusive perspective in that students behave differently in their adaptation into the school environment. Some students are less adaptive than others in a typical learning environment, and thus they need focused or more intensive services. The purpose is not to isolate them from the other students, but train them to be more competent to engage in normal daily life. Simultaneously, the approach adjusts the environment to be more functional for a diverse group of students. Despite the targeted group and intensity of interventions, all the tiers of supports are under the umbrella of school expectations. From the SWPBS perspective, all students can make improvements to become more academically and socially competent. This conclusion is supported by the findings of the present study. All the students in the class made academic and social progress by the end of the implementation. Collectively, the approach benefits students and teachers, and thus is worthy of application in primary schools in China.

Carr and Horner (2007) highlighted the importance of cultural variables in the application of PBS. In order to implement SWPBS successfully, it is essential to

consider whether the framework is coherent with the culture. Speaking from educational belief, a pivot of SWPBS, which is catering for individual differences, is coincident with a key educational stance of the Confucian philosophy. Confucius proposed that students should be taught in accordance with their aptitudes because they were different in intelligence, personality, motivation, and ambition (Confucius, trans. 1971). The stance has been inherited and developed as a key principle of contemporary education in China. The Compulsory Education Law regulates that the teacher “during the course of education and teaching, treat his students equally, pay attention to their individual differences, teach students on the basis of their aptitude” (Ministry of Education of People’s Republic of China, 2006, Article 29).

However, while SWPBS is an operational framework for realising the aim of “catering for individual differences”, Chinese schools do not have concrete procedures to ensure they yīn cái shī jiào (teach a student in accordance of his or her aptitude; Zhang, 2009). The practice relies on individual teachers’ performance. Although Chinese teachers recognise the importance of individual differences, they have many difficulties in following the principle in their own teaching. Feng and Li (2009) found that the biggest problem was teaching a large-sized class, which consists of diverse students. In the study, teachers reported that it was hard to take care of all students, particularly those with special needs. They also reported they lacked strategies and the technology to deal with special needs. Some researchers (e.g., Zhang, 2009) have argued that the aim to “teach students on the basis of their aptitude” is impractical, given the current educational situation in China. This issue reflects what Dewey had pinpointed in *Democracy and education: An introduction to the philosophy of education*, a weak educational system is *not* being based upon a consideration of existing conditions, even though it contains theories about the proper end of activities (Dewey, 1966, p. 104).

The philosopher, psychologist, and also educational reformer believed that good education must be founded upon inner needs, could be translated into a method that

cooperates with the undergoing situation, and be connected with all specific contexts. These elements are carefully organised in the framework of SWPBS. Collectively, both the findings of the present case study and commonplace of educational ideology support the application of SWPBS in Chinese school contexts.

6.6.1.2 Support for teachers

To ensure the success of applying SWPBS in Chinese schools, it is essential to prepare teachers. Previous studies (Hieneman & Dunlap, 2001; Kincaid, et al., 2007) pointed out that teachers' buy-in with an intervention was the most important factor for implementation with high fidelity. To ensure teachers' commitment to effective behavioural management, it is necessary to provide training and other technical supports (e.g., consultation) to them. Given that Chinese teachers tend to have a low sense of responsibility for students' behavioural performance, the training needs to be both ideological and practically focused. For instance, in this study, the researcher delivered training sessions to the teachers who had not had any contact with SWPBS before the practice. The training served two purposes. First, it guided the teachers to construct the framework of SWPBS so that they would accept the concept and methodology. In particular, the session aimed to show teachers that their own understanding and expectation of classroom behaviour influenced students' actual performance. Secondly, it assisted them to develop their own CWPBS practice by introducing principles, strategies, tools, and examples. During the implementation, regular meetings were held for exchanging opinions, making decisions, and solving problems that the teachers had encountered. Research has constantly suggested that progress monitoring and support, enhance fidelity and sustainability and students' performances (Allinder & Oats, 1997; Myers, Simonsen, & Sugai, 2011; Noell, et al., 2005; Simonsen, et al., 2014; Workman, Watson, & Helton, 1982).

Teachers may have different needs of professional development due to different educational stances, teaching experiences, and senses of teaching efficacy. Relevant studies of primary education in China have shown that teachers without a special

education background have a much lower level of tolerance for students with special educational needs than those with a special education background (Wei & Yuen, 2000). Novice teachers' repertoire of behaviour management is not effective enough (Zhang, 2008). In addition, novice teachers' competence in applying appropriate strategies is weaker than experienced teachers.

Thus, if conditions permit, a supportive program with multiple-components is desirable in school-based intervention because it is efficient with resources and caters to diverse needs. For instance, Simonsen and colleagues (2014) developed a three-tiered framework for professional development. The framework has a similar structure to SWPBS, and allows for differentiating supports for all the teachers within a school. School administrators initially provide training and self-monitoring tools to all the teachers (Tier 1). For teachers who have moderate challenges in behaviour management (e.g., a teacher is implementing with low fidelity), the school arranges additional assistance (Tier 2) such as a self-management approach to promote teachers' effective instruction. For teachers who have chronic or significant challenges, the school uses a data-driven consultation approach (Tier 3) in that individual teachers are paired with a behaviour trainer to develop and follow an action plan. The researchers piloted the framework and demonstrated increased occurrence of positive instruction.

Administrative support is a key facilitator of teachers' buy-in with implementation and fidelity. A pitfall of traditional behavioural management is that it focuses on the practice that a teacher reacts to problem behaviour. The approach positions school administration at the periphery of the problem and leaves the teacher to solve the problem alone. Without systemic supports (e.g., policies, resources), teachers are likely to experience helplessness and pressure in dealing with problem behaviour. Chinese teachers posit insufficient school administrative support, including lack of funds for implementing integration, incentives for teaching, and inadequate instructional resources and aids, as the most important issue to be solved for inclusive education (Liu, Du, & Yao, 2000; Yao, 2012). Therefore, it is important for school administrators to

adopt a systemic and environmental view about behavioural management. They need to recognise classroom management as a part of school management, rather than as a part of classroom teaching. Thus, it is necessary to create a system to support the collective use of appropriate practices by all the teachers within the school, ensure accurate implementation, sustain and modify practices over time, and promote professional development. From the SWPBS perspective, such a system should be organised by a leadership team and established prior to behavioural intervention (Sugai & Horner, 2006).

6.6.1.3 Integration of teaching and medical treatment to provide intensive interventions for students with severe problems

The practice of SWPBS needs to be considered with other important factors such as school culture, teachers' readiness, and student population. This study reveals that the primary support has immediate and significant effect on students' behavioural performance, and is most likely to be accepted by teachers. Thus, schools need to establish the multi-tiered support step by step. The primary support should be in place and routinised initially. The step may take a few years to complete due to large class or school size in Mainland China. The secondary support needs to be introduced when most of the teachers and students within the school have found the primary support effective and acceptable. Furthermore, the secondary support needs to be implemented with high efficiency. Considering working load has become a major issue in Chinese teachers' negative emotions, the procedure of the secondary support needs to be timesaving, feasible, and multi-context-applicable. For example, the CI/CO system, which is a highly efficacious and low effort intervention, has been widely used to help students in the secondary support in western countries (Debnam, et al., 2012; Hawken, et al., 2009). In the present study, the system was also used as the key element of the secondary support. The teachers felt that it was easy and comfortable to follow the procedure.

The practicability of tertiary support is disputable given the availability of

resources of special service in the current schools. For one reason, the design and implementation of individualised support plans requires intensive effort expenditure, sufficient professional knowledge and experience of special education, and expertise in behavioural counselling or therapy. These resources are scarce in the contemporary school system in Mainland China (Peng, 2011). For another reason, as suggested by the present study, Chinese teachers may have low sense of acceptance and/or efficacy toward the practice. Coincidentally, negative attitudes have been found in a number of studies about Chinese teachers' attitudes toward inclusive education (Xiao, Liu, Chen, & Zhang, 2014; Yao, 2012).

A solution to address the inadequate special educational resources in general schools is integration of school education and medical care. Instead of creating a big challenge to current school administrators and teachers or waiting for the recourse of special education to be sufficient to implement the individualised plan, an alternative solution is building the tertiary support on the Combining Medicine and Education mode. The mode recognises diversity and complexity in disabilities. It embraces a medical perspective in that biological factors cause disability, and applies medical treatments for rehabilitating body function. At the same time, it emphasises the use of educational approaches to promote the development of children's potential abilities (Fu & Xiao, 2013). To children with chronic or severe behavioural problems, it is very likely that they have been taken or will take medical treatments. The collaboration between teachers and medical personnel such as a pediatrician can reduce teaching pressure and create a positive environment for the students' rehabilitation in school and other typical contexts.

The mode is recommended as a key strategy in the development of the inclusive education system in Mainland China. The Special Education Enhancement Plan (2014 – 2016) promotes the use of this mode to reform the instructional procedures and improve resources of special education service in both the general schools and special schools (the Central People's Government of the People's Republic of China, 2014). Currently,

the trial of the mode is being undertaken in a number of developed regions. For example, the educational department of Shanghai (www.shmec.gov.cn) regards it as the core of the special education revolution. The department is introducing rehabilitative treatments into the school system. The database of assessment and treatment for children with special educational needs that is open to medical personnel, teachers, and parents is being established.

The tertiary support of SWPBS can be integrated into the mode and used as the framework for collaboration between schools and hospitals. An advantage of SWPBS is that it constantly monitors and evaluates children with chronic or severe problems. Before the children receive the tertiary support, profiles of behavioural and academic performances are already established. These profiles contain important evidence and convey a social perspective for medical personnel to develop, implement, and evaluate the treatments. Another advantage is that school participation creates a typical context for the children to practise adapted behaviour and skills during or after the treatment. It is clear that the school environment is a key environment in a child's development. With adequate training, teachers can assist hospitals to collect the data that are associated with the treatments. Given the uniqueness of the school environment, these data are difficult or impossible to be collected by medical personnel. Teachers' involvement in the activities may gradually enhance their own understanding of problem behaviour and repertoire of management strategies, which may increase the readiness for more specialised behavioural management.

6.6.2 Implications for research

During the course of this research, it was evident that there is more to learn about outcomes during and after the implementation of SWPBS. First, there is a need to include a follow-up phase to determine whether students' behavioural, academic, and emotional improvements would maintain throughout time. Adaptation or maintenance of a positive lifestyle of a child builds on the display of appropriate behaviour and improvement of school performance constantly (Carr & Horner, 2007). It is also

necessary to include a follow-up phase to determine the maintenance of teachers' improvements in teaching efficacy and/or management strategies in regards to behavioural management. The social validity is enhanced when the teachers continue to respond positively to problem behaviour in the future.

Secondly, individual students should be observed across a broader range of settings to evaluate the generalisation of behavioural improvements. A sound school-based intervention should enable a child's adaptation of appropriate behaviour within the entire school environment and even in environments (e.g., home, community) that are external to school (Horner, 2000). The more environments the child accommodates to, the more positive effects that the intervention leads to, and the better lifestyle the child develops. Future research may apply the SWPBS more widely and evaluate the outcomes with more broadly.

Thirdly, there is a need for a comprehensive study of the students who respond less well to the implementation. Although the evaluation suggests that the entire class had made progress during and after the implementation, the improvements of some students were less distinct than other students. For example, in the Math tests, while none of the students received extremely low scores (≤ -2 standard deviations) after the implementation (there was 13% before the implementation), two more students fell into negative score ranges, compared with the pre-implementation. It would be interesting to explore the causes of underperformance for the two students. Such an investigation would be useful to develop more effective interventions for all students and teachers.

Last but not the least, although this study investigated a particular learning context that consisted of 48 students and three teachers, it is possible to generate a more abstract model based on the findings in this study as well as findings from previous studies (for detail see Chapter Two). This is the model that connects SWPBS, QSL and teachers' sense of teaching efficacy. It hypothesises that both students and teachers benefit from sustained implementation of CWPBS/SWPBS to form a cycle (see Figure 6.1). Through the integration of school climate establishment and a continuum of

behavioural supports, students' academic achievement, social life and self-awareness improve. Eventually, students' sense of school life enhances. The improvement of students' behaviour, academic achievement, and social competence promotes teachers' acceptance of the approach. By analogy, implementation with acceptable fidelity promotes teachers' acceptance of the procedure. Hence, teachers may feel more efficacious and act positively in classroom instruction and interactions with students, and their sense of teaching efficacy would be enhanced. Teachers with an increased sense of teaching efficacy are likely to continue the implementation. The longer the maintenance, the more sustained behavioural change may occur; thus, students would maintain good sense of QSL.

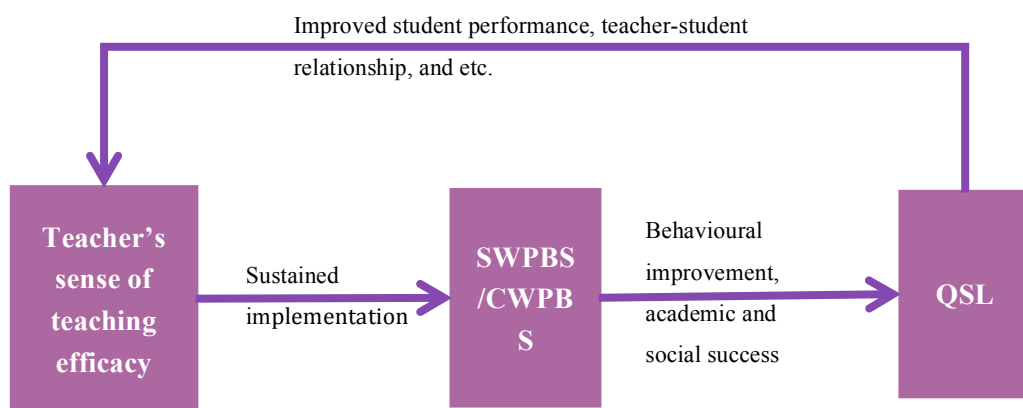


Figure 6.1: A Cycle of SWPBS/CWPBS, QSL and Teachers' Sense of Teaching Efficacy

The model further suggests that both teachers' and students' performance are dynamic and interactive during the implementation. Previous studies mainly looked at the correlation between teacher well-being and SWPBS, or the effect of SWPBS on students. This study implies that teachers' perceptions and attitudes about teaching and behavioural management is changeable. It would be of interest to researchers to test the model in research with other variables. The present study was undertaken in the classroom system. Future studies may investigate the model in non-classroom systems (e.g., canteen) or transition contexts (e.g., from classroom to playground). These contexts are also elements of school life that warrant in-depth investigation. Future studies may also involve a large sized sample that consists of experimental and control

groups. The experimental design allows for comparison of the outcomes between the experimental and control groups (Creswell, 2012), which indicates the effect of model in the application of SWPBS. It also would be of interest to investigate the specific variables that facilitate or impede the effect of the model. For example, which specific elements of teachers' sense of teaching efficacy are most likely to be affected by students' behavioural performance and also determine teachers' integrity during the implementation? The findings may help researchers and practitioners to develop appropriate procedures with sustained effect to benefit teachers and students.

6.7 Conclusion

Classroom misbehaviour has been a major concern for effective learning and teaching in primary schools in Mainland China. Chinese teachers tend to be more responsible for academic instruction than behavioural management. The traditional classroom management style expects students' self-discipline. Minor or non-disruptive misbehaviour is often neglected, whereas severe or disruptive misbehaviour is negatively treated. However, negative strategies are criticised by society and forbidden by educational laws. Thus, the greatest difficulty of Chinese teachers has been in the practice of school-based interventions that not only minimise problem behaviour but also facilitate students' all-round development.

Over the last three decades, "positive behaviour support" (PBS) has been widely applied in western societies for people with behavioural problems. It derived from its parent discipline "applied behavioural analysis" (ABA), but evolved with the influence of other disciplines. It is an interdisciplinary and pragmatic approach that seeks to improve a person's quality of life through sustained improvement of this person's behaviour and living environment.

The "school-wide positive behavioural support" (SWPBS) is the application of PBS in school contexts. The most common model for SWPBS implementation is the three-tiered preventative supports. It treats different students' needs with differentiated interventions, under the umbrella of school expectations. The primary support is a

universal support for all students and staff across a broad range of settings. The secondary support is a group-focused intervention for students who are not responsive to the primary support and need more intensive interventions. The tertiary support is individualised intervention for students who are not responsive to the secondary support and need the most intensive and specialised interventions. It is suggested that the primary, secondary, and tertiary supports benefit the majority (over 80%), a small proportion (5 to 15%), and a very small group (1 to 5%) of the students' population.

SWPBS has been regarded as an effective school-based behavioural practice and has been applied widely in many western countries. It is not a strategy or curriculum, but a decision-making framework for developing interventions and implementing them through a continuum of preventative supports. The approach can be applied across the entire school context, or a number of sub-contexts. The "class-wide positive behavioural support" (CWPBS) is its variant for the classroom system.

This study was a preliminary study of the practice of CWPBS in a primary school in Mainland China. It aimed to evaluate the students' outcomes, namely, behavioural performance, academic achievement, and quality of school life, as well as teachers' outcomes, namely, treatment fidelity, management strategies, their sense of teaching efficacy, and their subjective acceptance of the implementation, that were associated with the implementation. In this study, the students were the participants who received the intervention, whereas, the teachers were the participants who delivered the interventions. Thus, it was important to investigate the results and perceptions of both groups. It is expected that the study contributes to the cultural validation of SWPBS, and the findings have implications for the research and practice of inclusive education in China.

This study adopted embedded single case study design to gain an in-depth understanding of students' and teachers' outcomes during and after the implementation of CWPBS. The students of the class that received the entire practice formed the holistic case. In addition, the group of students that received the secondary support and the

individual student who received the tertiary support formed two embedded units of analysis. Multiple sources of data, including qualitative and quantitative data, feedback from the students, teachers, and parents were collected.

The following key findings can be concluded from the present study:

1. Fewer categories and lower prevalence rates of behavioural problems on the class and students with problem behaviour were reported by the participating teachers after the implementation.
2. The occurrence rates of targeted problem behaviours and targeted appropriate behaviours improved substantially and sustainably throughout the implementation. The targeted problem behaviours had been identified by the teachers as the most troublesome problems in classroom instruction. The targeted appropriate behaviours had been identified as the important behaviour that facilitated classroom learning.
3. Behavioural improvements on the class and students with problem behaviour had been continuously reported by the teachers throughout the practice.
4. The results of standardised behavioural ratings indicated a broad range of reductions of problem behaviour occurred on the class and students with problem behaviour.
5. The increased proportion of positive Z-scores on school achievement exams of the class was an improvement of academic achievement.
6. As for the students with problem behaviour, their Z-scores and percentiles of school achievement exams improved remarkably throughout the implementation of secondary or tertiary supports.
7. Improvements on academic-related activities on the class and students with problem behaviour had been continuously reported by the teachers throughout the practice.
8. The results of the QSL-CV indicated that the class had improved

satisfaction of all the aspects of quality of school life.

9. The teachers had high percentage occurrence of the strategies as planned, but relatively low percentage compliance of the procedures of these strategies.
10. The teachers displayed differentiated usages of the strategies for behavioural management.
11. The teachers' management strategies became more positive and consistent after the implementation of CWPBS.
12. The teachers had enhanced senses of the General teaching efficacy and Personal teaching efficacy after the implementation of CWPBS.
13. The teachers expressed the acceptance of the intervention procedures and satisfaction with the effects during and after the implementation of CWPBS.
14. The teachers expressed high acceptance of providing pro-active and positive interventions to the class. At the same time, they had relatively low acceptance of the tertiary support due to their educational beliefs and its time-consuming nature.

These findings are a significant addition to the paucity of research literature on the application of SWPBS in school contexts in China. Based upon these findings, a number of arguments can be inferred:

1. The implementation of CWPBS is associated with behavioural improvement of the students.
2. The implementation of CWPBS is associated with academic improvement of the students.
3. The implementation of CWPBS is associated with increments in students' sense of quality of school life.
4. The implementation of CWPBS is associated with enhancement of teaching strategies.
5. The implementation of CWPBS is associated with increments in teachers' sense of teaching efficacy.

6. Chinese teachers demonstrated a complex pattern of treatment fidelity.
7. Chinese teachers had high acceptance of CWPBS, except providing a continuum of positive intervention to students with severe problem behaviour.

The findings and arguments carry implications for the practice of school-based interventions in primary schools in Mainland China. The theoretical and operational frameworks of SWPBS are suitable for the educational belief of compulsory education in China and the social expectation of school education. It is worthwhile for applying the approach in the schools. In order to ensure the application with high fidelity and sustainability, it is necessary to provide all the teachers with sufficient technical and administrative supports. The implementation should be carefully scheduled to promote the buy-in from all the stakeholders.

Given that the implementation of the tertiary support requires intensive effort expenditure, sufficient professional knowledge and experience of special education, and expertise in behavioural counseling or therapy, an alternative solution is incorporating the support with the Combining Medicine and Education mode. This model is a key strategy of development of the inclusive education system in Mainland China. It makes use of the advantages of school and hospital resources for providing accurate diagnosis and effective and meaningful treatments for children with problem behaviour. The practice of SWPBS can be a rich database for the diagnosis and positive context for the treatment.

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Appendix A

Classroom Behavioural Support Plan (in translation)

This plan has been developed for implementing class-wide positive behavioural support to improve class climate and students' behaviour in the class.

Preparatory Phase

1. Establishing PBS team

The blueprint for implementing SWPBS suggests that a practice should start with establishment of the leadership team (Sugai & Horner, 2002). In this practice, the PBS team is consisted of Ms. Zhang, Ms. Ji, Ms. Chen, and the researcher. The team holds regular meetings to deal with the following responsibilities. The meeting is normally held once every four weeks.

1.1 The key responsibilities of the team:

- a. Developing intervention plans under the framework of the three-tiered support.
- b. Updating intervention plans to maintain or increase its effect.
- c. Evaluating the progress and effect of the interventions.
- d. Communicating with parents and school administrators for reporting progress and acquiring supports.
- e. Solving problems that occur during the implementation.

1.2 The key responsibilities of each member

Ms. Zhang, the homeroom teacher, is the leader of the team. Her responsibilities include:

- a. Making decision of 3~5 general expectations and any procedures that are undertaken across two or more contexts for the class.
- b. Making decision of specific rules and the teaching plans for Ms. Zhang's instruction.
- c. Coordinating behavioural procedures delivered by different teachers or in different contexts for the class.
- d. Reporting the progress to parents and school administrators.
- e. Communicating with parents and school administrators for additional collaboration or other supports.
- f. Documenting the action plans and other results.
- g. Organising the regular meetings

Responsibilities of Ms. Ji and Ms. Chen include:

- a. Making decision of specific rules and the teaching plans for their own instructions in accordance with the general expectations.
- b. Reporting the progress that is associated with the subjects taught by the teachers to parents and school administrators.
- c. Documenting the action plans and other results that are associated with the subjects taught by the teachers.
- d. Attending the regular meetings.

Responsibilities of the researcher:

- a. Training the teachers to have a good sense of the framework of SWPBS and necessary strategies and techniques.
- b. Attending the regular meetings.

1.3 The key tasks of monthly meetings:

- a. Deciding class-wide expectations and specific rules.
- b. Developing and updating procedures for the primary, secondary, and tertiary supports.
- c. Selecting students who will receive the secondary or tertiary supports.
- d. Evaluating progress and outcomes.
- e. Brainstorming solutions for problem solving.

2. Training for PBS team

The training is delivered in the School Week 1 and 2, for two purposes. First, it provides fundamental information of SWPBS to the team for enhancing the members' buy-in. This includes:

- a. Introducing the theoretical framework, critical features, and commonly used strategies
- b. Introducing the application and effect of approach
- c. Providing implementing examples

Establishing the Primary Support

1. Key tasks:

- a. Defining three to five class-wide expectations.
- b. Developing a matrix that listed classroom expectations as the row header and classroom contexts as the column header.
- c. Designing instructional procedures for introducing and practicing the rules with the class.
- d. Developing an incentive system for reinforcing the compliance with the

expected behaviour.

e. Developing an agreed-upon system for preventing problem behaviour.

2. Establishing class-wide expectation and behavioural matrix

2.1 Class-wide expectation: a small number (3-5) of positively stated rules, e.g., “Be learning”, “Be respectful”, and “Be responsible”. The expectation should be consistent with the school motto.

2.2 Behavioural matrix: operationally define the expectation across settings in a matrix format. E.g.,

Behavioural Matrix for Class 4 (Version 1)

I want to be a hard working, respectful, and responsible student.

	Be learning	Be respectful	Be responsible
In Ms. Zhang's class	1. Participating in activities and discussions	1. Be listening and quiet when other student is answering a question 2. Be loud when you are answering a question	1. Keeping hands on my desk 2. Completing my homework
In Ms. Shi's class	1. Participating in activities and discussions	1. Be listening and quiet when other student is answering a question	1. Completing my in-class work 2. Completing my homework
In Ms. Li's class	1. Following directions	1. Be listening and quiet when other student is answering a question	1. Completing my in-class work 2. Completing my homework

2.3 Posting the expectation and behavioural matrix publicly.

3. Teaching behaviours in the context of routines

The teachers are encouraged to use the following strategies:

- Teaching expected behaviours directly: defining behaviour by tell the class what the behaviour look like within the context; providing the class with examples and non-examples of the behaviour in the context; practicing the behaviour with class.
- Actively involving the class in lesson: practicing the expected behaviour in game, role-play, reflection, etc. to check for their understanding.
- Practicing the expected behaviour in non-class contexts: practicing the expected behaviour in modeling, peer nomination, etc.

4. Establishing class-wide incentive system

The incentive system is developed to acknowledge and reinforce exertion of

expected behaviours (Sugai & Horner, 2009). The team develops the system that consists of individual and whole class system.

4.1 Token economy

Individual system is a token economy to reinforce an individual student who performs properly. The PBS team creates a list of reinforcers, including the cost of each reinforcer. The list is posted on the notice board of classroom. Stamps collecting cards (see the figure below) are dispensed to each student. Students are required keeping the card on desks in lesson and in the plastic pocket for placing name card in class break. The teachers are encouraged to provide stamps to students whom behaves appropriately.



Token exchange is conducted in Wednesday and Friday's afternoon class by following the below procedure:

- a. The student selects a reinforcer and registers at the leader.
- b. The leader deducts the amount of stamps that matching cost of the reinforcer.
- c. The leader gets the reinforcer from Ms. Zhang and dispenses to the student.

4.2 Whole class privilege

Whole class system is for rewarding expected behaviour displayed by most or all of the class at the same time. A Privilege (e.g., watching a cartoon film) is earned when the class reached the goal. The school administration provided funding and other resources for the rewards.

The PBS team worked together to decide the criteria of rewarding a “smiley face” as the acknowledgement of whole class behaviour. For instance, the participating teacher would stick a “smiley face” on the notice board each time when more than 80% of the students completed homework. When the amount of “smiley faces” reached to

the goal, the class earns a privilege. Delivery a privilege followed the below procedure:

- a. Ms. Zhang provides a number of choices such as watching a movie, deciding the content of a lesson, playing group games for 40 minutes.
- b. Group leaders collect the decision from each member and reported to Ms. Zhang.
- c. The choice with the most votes becomes the privilege.

5. Procedures for preventing problem behaviour

Procedures for preventing problem behaviour included adjusting environment and active teacher-student interaction. The teachers were recommended to use the following strategies:

- a. Pre-correction: teacher-directed antecedent activities (e.g., adjusting the physical environment) for preventing the occurrence of predictable problem behaviour and facilitating the occurrence of expected behaviour (Colvin, Sugai, Good, & Lee, 1997; De Pry & Sugai, 2002).

The strategy can be delivered via: (1) a verbal prompt, e.g., description of expected behaviour, re-statement of rule; (2) a non-verbal prompt, e.g., gesture, model; (3) practising expected behaviour; or (4) reminder of the reinforcers associated with display of expected behaviour.

- b. Active supervision: teacher-directed overt behaviours (e.g., moving, interacting) for preventing the occurrence of predictable problem behaviour and facilitating the occurrence of expected behaviour (Colvin, et al., 1997; De Pry & Sugai, 2002).

The strategy consists of three steps: (1) the teacher moves among the students, visits problem areas, makes his or her physical presence known, and scans the environment for appropriate and inappropriate display of behaviour; (2) the teacher actively and frequently interact with students by having conversations, providing expectations and reminders, and teaching expected behaviour; and (3) the teacher gives frequent positive reinforcers for display of expected behaviour.

- c. Specific praise to reprimand ratio is at least 2:1. Specific praise is a verbal comment or gesture that acknowledge appropriate behaviour or academic performance of the student. Reprimand is a verbal comment or gesture that indicates disapproval of behaviour or academic performance of the student (Fairbanks, 2007).
- d. Actively engaging students with academic-related tasks: academic-related interactions (e.g., ask and answer, role play) initiated by the teacher for promoting learning-related behaviour and preventing the occurrence of predictable problem behaviour.

- e. Rewarding: Giving materials or tokens to the student as the acknowledgement of appropriate behaviour or academic performance.

Consequence-based procedure is developed for students whom displayed problem behaviour continuously. The teachers are expected to use the following strategies:

- f. Opportunity for correction: The student has a chance of displaying appropriate behaviour and will receive the teacher's positive acknowledgement after the student has received a negative response from the teacher.
- g. Followed the proper procedure of using punishment for reducing the occurrence of problem behaviour: Teachers should start with less aversive procedures (e.g., verbal reminding accompanied with a suggestion, response cost) before the use of exclusion time-out. Once the student terminates the problem behaviour, the teacher should also terminate the current punishment. Corporal punishments and insulation should not be used on students at any occasions.

Establishing the Secondary Support

1. Key tasks:

- a. Selecting a group of students who will receive the intervention based on their behavioural and academic performance during the primary support.
- b. Developing the behavioural expectation for the group.
- c. Designing a procedure for reinforcing the expected behaviour.

2. Selecting the students

Each teacher nominates three to five students who are not responding well to the primary support. The nominated students may have but not limit to the following problems: have low response to the class-wide expectation and rules, manifesting problem behaviour while the other students are on-task or following the teacher's direction, do not complete assignment, and/or have poor social relationship with peers. Eventually, the participants will be determined in the third PBS meeting.

3. Developing the behavioural expectation

Defining a small number (1-3) of positively stated rules. The behavioural expectation for the group should be achievable and congruent with the class-wide expectation. The PBS team decides the criterion of achievement of each student in the group.

4. The Check-in/Check-out (CI/CO) System + Group Contingency

The CI/CO system is developed for reinforcing the expected behaviour of the

group. A daily report card is designed and printed out. Each student in the group receives a new daily report card (see the figure below) at the beginning of a school day from the homeroom teacher. The students need to write down their names and assisting peers on the card, and then place the card at teacher's desk. After the class, the participating teacher will circle a grade (0, 1, 2, or 3) as a feedback of the student's performance on the expected behaviour. By the end of the school day, the homeroom teacher sums up all the grades and calculates the percentage of achievement. The student needs to take the daily report card home. The parents need to read the daily report card and sign. The next school day, the student should return the card to the homeroom teacher and get a new card.

Daily Report Card

Student's name: _____ Full mark: _____
 Assisting students' names: _____ Actual mark: _____
 _____ Percentage: _____%
 Date: _____ Satisfy: Yes No
 Rewards: _____

Routine	1. On-task					2. Completing task				
Morning class	3	2	1	0	N	3	2	1	0	N
1 st lesson	3	2	1	0	N	3	2	1	0	N
2 nd lesson	3	2	1	0	N	3	2	1	0	N
3 rd lesson	3	2	1	0	N	3	2	1	0	N
4 th lesson	3	2	1	0	N	3	2	1	0	N
5 th lesson	3	2	1	0	N	3	2	1	0	N
6 th lesson	3	2	1	0	N	3	2	1	0	N

Comments from the homeroom teacher: _____

Comments from the parents: _____

Group Contingency: If the student's achievement satisfies the criterion of, he or she can earn a reward, and so can the assisting peers. If all the students in the group achieve the goal, the whole class can earn a reward. The rewards are connected to the token economy for the primary support.

Establishing the Tertiary Support

1. Key tasks:

- a. Selecting the students who will receive the intervention based on their behavioural and academic performance during the secondary support.
- b. Conducting functional behavioural assessment
- c. Developing the functional-based behavioural support plan.

2. Selecting the students

Each teacher nominates one to two students who are not responding well to the secondary support. The nominated students may have but not limit to the following problems: chronological problem, low response to the CI/CO system, very difficult to follow teacher's direction, and/or severe social problems. Eventually, the participants will be determined in the fourth PBS meeting.

3. Functional behavioural assessment (FBA)

FBA is used to identify problem behaviour, including the characteristic, occurrence, common predictors, setting events, and consequences of the problem behaviour. Each teacher completes the simple FBA questionnaire (see below) adapted from Crone and Horner (2003). Group discussion will be held to create the assumption that predicts the problem behaviour. The FBA will be conducted in the fourth meeting.

Functional Behavioral Assessment Questionnaire

Student Name: _____ Age: _____ Date: _____

Person interviewed: _____

Student Profile: What is the student good at or what are some strengths that the student brings to school?

Step 1A: Teacher completes the questions individually

Description of the Behaviour

What does the problem behaviour(s) look like?
How often does the problem behaviour(s) occur?
How long does the problem behaviour(s) last when it does occur?
How disruptive or dangerous is the problem behaviour(s)?

Description of the Antecedent

Identifying Routines: When, where, and with whom are problem behaviours most likely?

Schedule (Times)	Activity	Specific Problem Behaviour	Likelihood of Problem Behaviour	With Whom Does Problem Occur
			Low High 1 2 3 4 5 6	
			1 2 3 4 5 6	
			1 2 3 4 5 6	
			1 2 3 4 5 6	
			1 2 3 4 5 6	
			1 2 3 4 5 6	

Summarise Antecedent (and Setting Events)

What situations seem to set off the problem behaviour? (difficult tasks, small-group settings, etc.)
When is the problem behaviour most likely to occur? (times of day and days of the week)
When is the problem behaviour least likely to occur? (times of day and days of the week)
Setting Events: Are there specific conditions, events, or activities that make the problem behaviour worse? (missed medication, history of academic failure, etc.)

Description of the Consequence

What usually happens after the behaviour occurs? (What is the teacher's reaction, how do other students react, is the student sent to the office, does the student get out of doing work, etc.)

-----For Group Discussion-----

Step 2A: Propose a Testable Explanation

Setting Event	Antecedent	Behaviour	Consequence
		1.	
		2.	

Function of the Behaviour

For each ABC sequence listed above, why do you think the behaviour is occurring? (to get teacher attention, to get peer attention, gets desired object/activity, escapes undesirable activity, escapes demand, escapes particular people, etc.)

1. _____

How confident are you that your testable explanation is accurate?

Very sure So-so Not at all sure

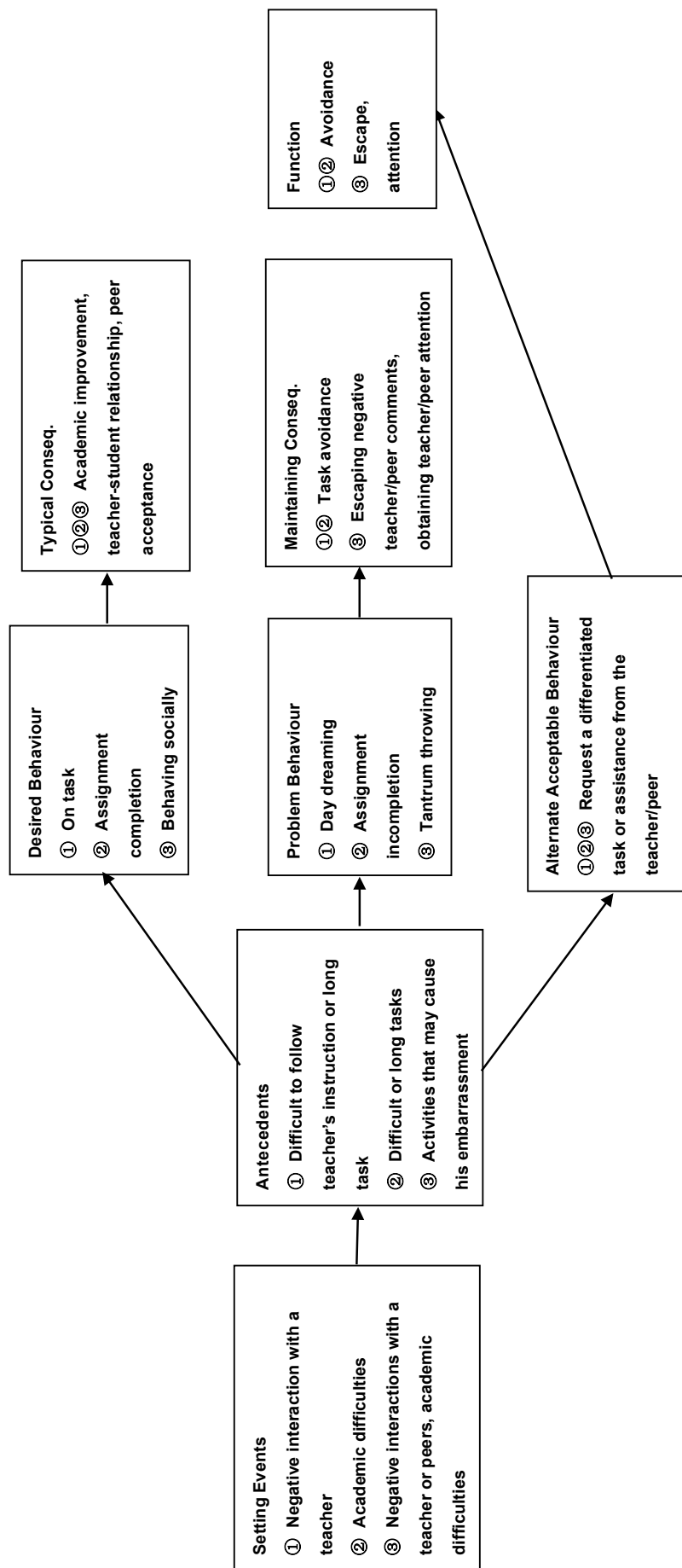
6 5 4 3 2 1

4. Functional behavioural support plan (F-BSP)

The development of F-BSP builds on the information and assumption from FBA. It follows the F-BSP protocol proposed by Crone and Horner (2003). The plan (see below) will be developed in the fourth meeting.

Function-based Behaviour Support Plan for Student G

Build a Competing Behaviour Pathway



Plan will be implemented as

Setting Event Strategies	Antecedent Strategies	Teaching Strategies	Consequence Strategies
Additional instruction in and after classroom instruction. Differentiated academic tasks. Seat arrangement: sit near teacher's table, arrange deskmates who are academic competent and friendly to the student.	Uses prompting/precorrection to prevent problem behaviour. Separates complicated or long tasks into a number of small tasks. Gives a chance of show off after completion of a complicated or long task. Arranges 3 to 4 assisting students to help the student with academic tasks. CJ/CO system Avoids reprimands. Makes behaviour correction shortly and specific. Opportunities for correction.	Teaches desired behaviour. Teaches the student to appropriate procedure for asking teacher or peers' attention or help. Promotes team work in the class and teaching the class the importance of team work. Teaches the student 'calm down' strategy. Teaches the student to ask for a differentiated task when he is frustrated with the current task.	Responses to Desired Behaviour: During CJ/CO, providing more specific feedback (4-time per lesson. Provides the student with two opportunities (morning and afternoon) to receive tokens, if he meets the goal. Provides the assisting students with tokens when they help the student to meet the goal. Integrates assignment completion into the whole class privilege (primary support). Response to Problem Behaviour: For day-dreaming: uses academic prompts, differentiated tasks, or team work. The teacher should ensure the appropriateness of task difficulty. For assignment incompletion: uses differentiated assignments. provides the student with 2 to 3 choices. Procedure For tantrum throwing: 1. Ignores the behaviour initially. 2. If the behaviour continues after 1, guides the student to do the 'calm down' procedure. Peers should ignore this behaviour. 3. If the behaviour continues and unsafe after 2, have the student escorted to the school clinics with absence of any social interactions/stimulations for 10 to 30 minutes. 4. When the student is calm for 2 minutes, the teacher should guide him to complete the task he had initially. Ensure the student with enough time to complete the task. After the completion, provides the student with a chance to demonstrate the appropriate behaviour. The teacher should verbally praise the behaviour.

References

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- De Pry, R. L., & Sugai, G. (2002). The effect of active supervision and pre-correction on minor behavioral incidents in a sixth grade general education classroom. *Journal of Behavioral Education, 11*(4), 255-267.
- Fairbanks, S. A. (2007). *Integrating levels of behavior support in the classroom*. Dissertation/Thesis, University of Connecticut.
- Sugai, G., & Horner, R. H. (2002). The evolution of discipline practices: School-wide positive behavior supports. *Child & Family Behavior Therapy, 24*(1-2), 23-50.
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Appendix B

Class Behaviour Observation Sheet (in translation)

General directions

You will be asked to conduct a series of 20 minutes observations in the classroom.

Data collection will occur 3 to 5 times per school week.

Prior to data collect, you will be trained on the observation and need to demonstrate 80% reliability with the researcher. Random inter-observer reliability checks will be conducted for a minimum of 40% of the observation session across phases. Should inter-observer reliability fall below 80%, observers will be re-trained.

Materials needed for observation

1. Blank observation sheet
2. Clip board
3. Pen or pencil
4. MP3 and earphones

Sampling order procedure

Each student will be assigned a code in accordance with the student's seat. For example, 4.3 refers to the student who sits at Column 4 and Row 3. 10 students will be randomly selected before each observation. These students' codes will be written on the left-side of the observation sheet. You will observe each student every time his or her code occurs. You will observe one student for 2 minutes and then will observe a different student the next time.

Code definition of targeted behaviour

Off-task behaviour (O): Not being oriented towards the task assigned by the teacher for at least three consecutive seconds of an interval of five seconds.

Inappropriate talking (I) is identified if one of the following behaviour has been observed for at least three consecutive seconds of an interval of five seconds:

1. Calling-outs were defined as verbal utterances that interrupted teacher instruction, comments, and questions, or student participation, without being called on by teachers;
2. Whispering was defined as talking to other students without teacher permission, including discussing instructional related topics.

On-task behaviour (+): Doing the task assigned by the teacher for at least four consecutive seconds of an interval of five seconds

Conducting the observation

Date: _____ (month)/ _____ (day)

Observer: _____

Observation Period start time: _____ End time: _____

Context: Ms _____ is having a _____ lesson.

Student	5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"	60"

Note. If the targeted behaviour(s) does not occur in an interval, mark the relative cell “-”.

Appendix C

Student Behaviour Observation (Partial interval) Sheet (in translation)

General directions

You will be asked to conduct a series of 10 minutes observations in the classroom.

Data collection for each student will occur 2 to 3 times per school week.

Prior to data collect, you will be trained on the observation and need to demonstrate 80% reliability with the researcher. Random inter-observer reliability checks will be conducted for a minimum of 40% of the observation session across phases. Should inter-observer reliability fall below 80%, observers will be re-trained.

Each of the four students will be assigned a code. G is for Student G, H is for Student H, S is for Student S, and W is for Student W. You will observe one student for 10 minutes. In a typical lesson, you may observe 3 or 4 students.

Materials needed for observation

1. Blank observation sheet
2. Clip board
3. Pen or pencil
4. MP3 and earphones

Code definition of targeted behaviour

On-task behaviour (+): Doing the task assigned by the teacher for at least four consecutive seconds of an interval of five seconds

Conducting the observation

Date: _____ (month)/_____ (day)

Observer: _____

Observation Period start time:_____ End time: _____

Context: Ms _____ is having a _____ lesson.

Student code: _____

Minute	5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"	60"
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												

Note. If the targeted behaviour(s) does not occur in an interval, mark the relative cell “-”.

Student code: _____

Minute	5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"	60"
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												

Note. If the targeted behaviour(s) does not occur in an interval, mark the relative cell “-”.

Student code: _____

Minute	5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"	60"
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												

Note. If the targeted behaviour(s) does not occur in an interval, mark the relative cell “-”.

Student code: _____

Minute	5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"	60"
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												

Note. If the targeted behaviour(s) does not occur in an interval, mark the relative cell “-”.

Appendix D

Treatment Fidelity Observation Sheet (in translation)

General directions

You will be asked to conduct a series of 40 minutes observations in the classroom.

Data collection for each teacher will occur 1 or 2 times per school week.

Prior to data collect, you will be trained on the observation and need to demonstrate 80% reliability with the researcher. Random inter-observer reliability checks will be conducted for a minimum of 40% of the observation session across phases. Should inter-observer reliability fall below 80%, observers will be re-trained.

Materials needed for observation

1. Blank observation sheet
2. Clip board
3. Pen or pencil
4. MP3 and earphones

Code definition of strategies

Pre-correction (PRE): teacher-directed antecedent activities (e.g., adjusting the physical environment) for preventing the occurrence of predictable problem behaviour and facilitating the occurrence of expected behaviour.

Active supervision (AS): teacher-directed overt behaviours (e.g., moving, interacting) for preventing the occurrence of predictable problem behaviour and facilitating the occurrence of expected behaviour.

Praise to reprimand ratio is at least 2:1 (PTR): Praise is a verbal comment or gesture that acknowledges appropriate behaviour or academic performance of the student. Reprimand is a verbal comment or gesture that indicates disapproval of behaviour or academic performance of the student.

Actively engaging students with academic-related tasks (AES): academic-related interactions (e.g., ask and answer, role play) initiated by the teacher for promoting learning-related behaviour and preventing the occurrence of predictable problem behaviour.

Rewarding (REW): Giving materials or tokens to the student in acknowledgement of appropriate behaviour or academic performance.

Opportunity for correction (OFO): The student has a chance to display appropriate behaviour and will receive the teacher's positive acknowledgement after the student has received a negative response from the teacher.

Follow the proper procedure of using punishment for reducing the occurrence of problem behaviour (FTPP): Teachers should start with less aversive procedures (e.g., verbal reminding accompanied with a suggestion, response cost) before the use of exclusion time-out. Once the student terminates the problem

behaviour, the teacher should also terminate the current punishment. Corporal punishments and insulation should not be used on students on any occasions.

Conducting the observation

Date: _____ (month)/_____ (day)

Observer: _____

Observation Period start time: _____ End time: _____

Context: Ms _____ is having a _____ lesson.

Strategy	In place	Partially in place	Not in place	Not required
PRE about 10-min/once				
AS about 10-min/once				
PTR is at least 2:1				
AES at least involves 5 to 10 students				
REW at least issues to 5 to 10 students				
OFO once when a negative reaction is displayed by the teacher				
FTPP every time the teacher needs to use punishment				

Note. Mark the cell “✓” that represents the teacher’s performance. Only mark one cell for each strategy.

Appendix E

Interview Questions for Teacher (in translation)

Section A: Teacher's perception of problem behaviours and behaviour management

(Question 1&2 will be asked before implementation of the class-wide positive behaviour support only.)

1. Please think about some common problem behaviours in your class on the last semester.

1.1 What is the most common problem behaviour?

What is the prevalence of this problem?

How troublesome the problem is?

How did you cope with this problem?

How satisfied are you with your coping strategy on this problem?

1.2 What is the 2nd most common problem behaviour?

What is the prevalence of this problem?

How troublesome the problem is?

How did you cope with this problem?

How satisfied are you with your coping strategy on this problem? Please think about some troublesome problem behaviours in your class on the last semester.

1.3 What is the most troublesome problem behaviour?

What is the prevalence of this problem?

How troublesome the problem is?

How did you cope with this problem?

How satisfied are you with your coping strategy on this problem?

1.4 What is the 2nd most troublesome problem behaviour?

What is the prevalence of this problem?

How troublesome the problem is?

How did you cope with this problem?

How satisfied are you with your coping strategy on this problem?

(Question 3&4 will be asked after implementation of the class-wide positive behaviour support only.)

2. Please think about some common problem behaviours in your class now.

2.1 What is the most common problem behaviour?

What is the prevalence of this problem?

How troublesome the problem is?

How will you cope with this problem?

2.2 What is the 2nd most common problem behaviour?

What is the prevalence of this problem?

How troublesome the problem is?

How will you cope with this problem?

3. Please think about some troublesome problem behaviours in your class now.

3.1 What is the most troublesome problem behaviour?

What is the prevalence of this problem?

How troublesome the problem is?

How will you cope with this problem?

3.2 What is the 2nd most troublesome problem behaviour?

What is the prevalence of this problem?

How troublesome the problem is?

How will you cope with this problem?

Section B: Teacher's sense of teaching efficacy

Firstly, please complete the following questionnaire that is about viewpoints in teaching. Please read the statements carefully and choose an answer that is the most suitable for you.

Item	Statement	Strongly disagree	Moderately disagree	Slightly disagree	Strongly agree	Moderately agree	Slightly agree
1	There are always good students and poor students in class. A teacher cannot change every student into good student.						
2	In general, what a student will be is determined by his/her nature.						
3	In general, what a student will be is determined by his/her family and society. Education is very limited influence on his/her development.						
4	A teacher has little influence on a student compared to the influence of his/her parents.						
5	The amount that a student can learn is primarily related to family background.						
6	If a student isn't disciplined at home, he/she isn't likely to be disciplined at school.						
7	Teachers are not a very powerful influence on student						

	achievement when all factors are considered.						
8	Even if a teacher is capable and passionate, he/she cannot change many poor students at the same time.						
9	Good students can take to everything the teacher teaches. To poor students, teaching is of no use.						
10	Although teachers can improve students' academic achievement, they have little idea in cultivating students' virtues.						
11	I have a good understanding of teaching materials by studying syllabus.						
12	I often have little idea in making teaching plans.						
13	I always make teaching plans in careful and detail.						
14	I can solve students' problems occurred in learning.						
15	If a student is disruptive in class, I often have no idea to cope with.						
16	When a student is having difficulty with an assignment, I am usually able to adjust it to his/her level.						
17	I have the ability to manage classroom well.						
18	If a student cannot remain on task, there is little that I could do to increase his/her attention.						
19	When I really try, I can get through to most difficult students.						
20	I have no idea on how to contact parents of my students.						
21	When the grades of my students improve it is usually because I found more effective teaching approaches.						
22	To those troublesome students, I usually have no idea on how to help them.						
23	If my school asks me to teach a new curriculum, I would feel confident that I have the necessary skills to implement the unfamiliar curriculum.						
24	If a student did not remember information I gave in a previous lesson, I would know how to increase his/her retention in the next lesson.						
25	If a student in my class becomes disruptive and noisy, I feel assured that I know some techniques to redirect him quickly.						
26	If one of my students couldn't do a class assignment, I would be able to accurately assess whether the assignment was at the correct level of difficulty.						
27	I have limited communication with my students.						

Second, in the pre-intervention interview, for each of the above statements, if your answer is “strongly disagree”, “moderately disagree”, “moderately agree” or “strongly agree”, please provide the reasons. In the post-intervention, the researcher will need to compare the answers to each item between pre- and post-implementation. For the items that had a discrepancy of answer in two scales or more, you will need to provide a reason for such a difference.

Section C: Teacher's perception of the class-wide Positive Behaviour Support

1. How do you feel about the approach *Class-wide Positive Behaviour Support*?
2. Which aspects of the approach do like the most? Why? Which do you like the least? Why?
3. Are there some changes that will make the approach more acceptable to implement? Why?
4. What, if any, potential negative effects might this approach have on students in your classroom? On your teaching?
5. Describe how well you think the approach worked.
6. What are the outcomes that you have perceived from use of the approach? Are you satisfied with these outcomes? How satisfied are you? Please rate from 1 (very unsatisfied) to 5 (very satisfied) to indicate the level. Why?
7. Would you recommend this approach to other teacher? Why or why not?
8. Would you use this approach in the future? Why or why not?

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Dear Customer,

Attached is a copy of the translation(s) you requested. We provide masters of translation(s) at no charge. You are permitted to make copies as long as the copies retain the copyright notice from the original.

Additionally, because the translations were produced by particular clinicians or researchers for work with particular groups, we are unable to be certain that they will be equally acceptable to all speakers of a language or for assessment under all conditions. If you feel a need to change the translations, please send us your proposed changes and the rationale for why you would like to make them.

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Sincerely,

Ramani Sunderaju
(Operations Manager)

儿童及青少年行为调查问卷（六至十八岁）— 2001 版

工作人员使用

(Child Behavior Checklist for AGES 6-18 - 2001 version)

编号

子女姓名:	籍贯: 出生地点:	父母通常的职业（即使现在没有工作）， 请说明职业类别。
性别: <input type="checkbox"/> 男 <input type="checkbox"/> 女	年龄:	例如：司机、教师、家庭主妇、工人、机械操作员、皮鞋售货员、警察。
填写日期: 年 月 日	出生日期: 年 月 日	父亲职业: _____ 母亲职业: _____
就读班级: <input type="checkbox"/> 没有上学	请根据你对贵子女行为的看法填写此问卷（即使您的观点与其他人不同），请随意在每项目旁及第三页中写你的评语。 请回答每一条问题。	此问卷的填写人 （请填上你的姓名）: _____ 您的性别: <input type="checkbox"/> 男 <input type="checkbox"/> 女 你与该儿童/青少年之关系: <input type="checkbox"/> 亲生父母 <input type="checkbox"/> 后父后母 <input type="checkbox"/> 祖父母 <input type="checkbox"/> 领养父母 <input type="checkbox"/> 寄养父母 <input type="checkbox"/> 其他（请列明关系）_____

1、请列出贵子女最喜欢参与之运动项目。例如：游泳、足球、羽毛球、篮球、排球、踏/骑自行车、钓鱼、溜冰、划板等。 <input type="checkbox"/> 无	与其他同年龄之儿童/青少年比较，贵子女在每项运动所用的时间？	与其他同龄之儿童/青少年比较，贵子女在每项运动的表现如何？
a、_____	比 一 比 不 一 般 一 清 般 般 楚 少 多	低 一 高 不 于 般 于 清 一 一 楚 般 般
b、_____	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
c、_____	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
2、除体育活动外，请列出贵子女最喜欢之嗜好、活动及游戏。例如：集邮、玩纸牌、阅读、弹琴、唱歌、手工艺、玩模型车、玩洋娃娃等。 （请不包括听收音机或看电视） <input type="checkbox"/> 无	与其他同年龄之儿童/青少年比较，贵子女在每项运动所用的时间？	与其他同龄之儿童/青少年比较，贵子女在每项运动的表现如何？
a、_____	比 一 比 不 一 般 一 清 般 般 楚 少 多	低 一 高 不 于 般 于 清 一 一 楚 般 般
b、_____	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
c、_____	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

3、请列出贵子女课余参与组织或团体名称 与其他同年龄之儿童/青少年比较，贵子女之参与程度？

☐ 无

	不甚积极	一般	非常积极	不清楚
a、_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b、_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c、_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4、请列出贵子女所做的任何工作或家务。如看管小孩、整理床单、洗碗、扫地、兼职/速食店打工等。

（包括有薪及无薪之工作）

低于一般 一般 高于一般 不清楚

☐ 无

a、_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b、_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c、_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5、（1）贵子女有多少好朋友？

☐ 无 ☐ 一位 ☐ 二至三位 ☐ 四位或以上

（不包括兄弟姐妹）

（2）贵子女每星期与朋友一起参加课外活动的次数？

☐ 少于一次 ☐ 一至两次 ☐ 三次或以上

（不包括兄弟姐妹）

6、与同年龄之儿童/青少年比较，贵子女在下列各项表现如何？

	比一般差	一般	比一般好	
a、与兄弟姐妹相处	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> 并没有兄弟姊妹
b、与其他儿童/青少年相处	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c、对父母之态度	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d、独自工作及游戏之能力	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

请回答所有问题，然后转到下一页

7 (1) 以下是有关贵子女学业成绩之问题。

如子女没有受教育, 请写出理由: _____

	不及格	低于一般	一般	高于一般
a、语文	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b、历史或社会	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c、数学	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d、科学/自然/物理或化学	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
其他学术科目, e、_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
例如电脑、地理或商科。 f、_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(不包括体操、劳作 g、_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
或其他非学术科目)				

(2) 贵子女是否入读特殊学校或特别/特教班? ☐不是 ☐是

请注明班级或学校类别: _____

(3) 贵子女曾否留级? ☐没有 ☐有

请注明留级的班级及理由: _____

(4) 贵子女在学校有没有学习上或其他方面的困难? ☐没有 ☐有

请详述困难: _____

该困难在甚么时候开始? _____

该困难是否仍然存在? _____

☐没有 ☐有

请注明何时终止? _____

(5) 贵子女有没有任何疾病、身体伤残或弱智? ☐没有 ☐有

请详述状况: _____

(6) 你最关注贵子女的是甚么? _____

(7) 请形容贵子女之各项优点: _____

请回答所有问题, 然后转到下一页

以下是一系列有关儿童与青少年的描述，请根据贵子女**现在或过往六个月内**的情况，评定下列每一项描述之准确程度。**非常准确或经常准确**，请圈**2**；**接近或中等准确**，请圈**1**；**不准确**，请圈**0**。请尽量回答所有问题，即使有些题目似乎不适用于贵子女。

0=不准确		1=接近或中等准确	2=非常准确或经常准确				
0	1	2	1、行为幼稚，与年龄不符	0	1	2	23、在学校不听话
0	1	2	2、没有父母允许，擅自饮酒	0	1	2	24、胃口欠佳，吃得不好
			请描述：_____	0	1	2	25、与其他儿童/青少年合不来
0	1	2	3、经常争辩	0	1	2	26、对自己的恶劣行为似乎不感到内疚
0	1	2	4、不能从头到尾做完一件事	0	1	2	27、容易妒忌
0	1	2	5、没有什么事情令他/她有乐趣	0	1	2	28、在家、学校或其他地方犯规
0	1	2	6、不在厕所大便	0	1	2	29、害怕某些动物、场合或地方（不包括学校）。
0	1	2	7、吹牛，爱夸口/自吹自擂				请描述：_____
0	1	2	8、精神不能集中，注意力不能持久				_____
0	1	2	9、脑海中老是重复走神想着某些事情，不能摆脱。请描述：_____	0	1	2	30、害怕上学
			_____	0	1	2	31、害怕自己会产生坏念头或做坏事
			_____	0	1	2	32、觉得自己必须十全十美
0	1	2	10、坐立不安/难安，活动过多/过度好动或不能安坐/浮躁	0	1	2	33、觉得或抱怨没有人喜欢他/她
0	1	2	11、喜欢缠着或过分依赖大人	0	1	2	34、觉得别人存心为难他/她
0	1	2	12、抱怨寂寞	0	1	2	35、觉得自己无用或自卑
0	1	2	13、感到困惑，或茫然不知所措	0	1	2	36、身体经常受伤，易生意外
0	1	2	14、经常哭泣	0	1	2	37、经常打架
0	1	2	15、对动物残忍	0	1	2	38、经常被人戏弄/嘲笑
0	1	2	16、对人冷酷，欺负他人，或对人刻薄，斤斤计较	0	1	2	39、爱和惹事生非的儿童/青少年来往
				0	1	2	40、听到实际上不存在的声音或人声。
							请描述：_____

0	1	2	17、好做白日梦，或沉迷在自己的思想中	0	1	2	41、行事冲动，不经三思
0	1	2	18、故意伤害自己或企图自杀	0	1	2	42、喜欢独处多过与人一起
0	1	2	19、要求别人经常注意他/她	0	1	2	43、说谎或欺骗
0	1	2	20、破坏自己的东西	0	1	2	44、咬指甲
0	1	2	21、破坏家里或他人的东西	0	1	2	45、神经过敏或紧张
0	1	2	22、在家不听话	0	1	2	46、动作紧张或肌肉抽搐/痉挛。
							请描述：_____

请回答所有问题，然后转到下一页

请回答所有问题					
0=不准确		1=接近或中等准确		2=非常准确或经常准确	
0	1	2	47、作恶梦	0	1 2 63、喜欢和年龄较大的儿童/青少年一起
0	1	2	48、不受其他儿童/青少年喜欢	0	1 2 64、喜欢和年龄较小的儿童/青少年一起
0	1	2	49、便秘	0	1 2 65、拒绝与人交谈
0	1	2	50、过度恐惧或焦虑	0	1 2 66、不断重复某些动作。请描述： _____
0	1	2	51、感到头晕		_____
0	1	2	52、过于感到内疚		_____
0	1	2	53、吃得过多	0	1 2 67、离家出走
0	1	2	54、无故感到过分疲劳	0	1 2 68、经常尖叫
0	1	2	55、身体过胖/体重过重	0	1 2 69、隐私/保守秘密，有事不会说出来
0	1	2	56、病因不明的症状	0	1 2 70、看到实际上不存在的东西。请描述： _____
0	1	2	a. 身体痛楚（胃痛或头痛除外）		_____
0	1	2	b. 头痛	0	1 2 71、容易感到尴尬
0	1	2	c. 恶心想吐	0	1 2 72、放火
0	1	2	d. 眼睛有毛病（不包括可用眼镜矫正之问题），请描述： _____	0	1 2 73、性方面有问题。请描述： _____

0	1	2	e. 出疹或其他皮肤病	0	1 2 74、炫耀自己或扮小丑
0	1	2	f. 胃痛	0	1 2 75、过分害羞或胆怯
0	1	2	g. 呕吐	0	1 2 76、比大多数儿童/青少年睡得少
0	1	2	h. 其他，请描述： _____	0	1 2 77、比大多数儿童/青少年在白天和/或 晚间睡得多。请描述： _____

0	1	2	57、攻击他人身体	0	1 2 78、注意力分散或容易分心
0	1	2	58、挖鼻孔，抓弄皮肤或身体其他部份。请描述： _____	0	1 2 79、有言语问题。请描述： _____
				0	1 2 80、目光呆滞
				0	1 2 81、在家里偷窃
				0	1 2 82、在家外面偷窃
0	1	2	59、当众玩弄性器官	0	1 2 83、囤积过多自己不需要/没有用的东西。请描述： _____
0	1	2	60、过多玩弄性器官		_____
0	1	2	61、作业质量差		_____
0	1	2	62、动作不协调或笨拙		_____

请回答所有问题，然后转到下一页

请回答所有问题

0=不准确	1=接近或中等准确	2=非常准确或经常准确
0 1 2 84、行为古怪。请描述： _____ _____	0 1 2 99、吸烟，嚼烟，吸鼻烟	
0 1 2 85、思想古怪。请描述： _____ _____	0 1 2 100、睡得不好。请描述： _____ _____	
0 1 2 86、固执，闷闷不乐或易怒	0 1 2 101、旷课/跷课，逃学	
0 1 2 87、情绪/心情或感受会突然变化	0 1 2 102、不够活跃，动作迟钝或精力不足	
0 1 2 88、经常闹情绪	0 1 2 103、不开心，悲伤或沮丧	
0 1 2 89、多疑	0 1 2 104、过分吵闹	
0 1 2 90、诅咒别人或讲粗口/说脏话	0 1 2 105、滥用药物（不包括酒精或烟草）。 请描述： _____ _____	
0 1 2 91、谈及自杀	0 1 2 106、破坏公物或别人的东西	
0 1 2 92、说梦话或梦游。 请描述： _____ _____	0 1 2 107、白天遗尿/小便失禁	
0 1 2 93、说话过多	0 1 2 108、夜间遗尿	
0 1 2 94、常戏弄他人	0 1 2 109、发牢骚	
0 1 2 95、大发脾气，或脾气暴躁	0 1 2 110、希望变成异性	
0 1 2 96、对性的问题想得太多	0 1 2 111、退缩，不合群	
0 1 2 97、恐吓他人	0 1 2 112、有忧虑	
0 1 2 98、啜/吸吮拇指	0 1 2 113、如果贵子女有其他问题不在上列之中，请在下面描述： a. _____ _____ b. _____ _____ c. _____ _____	

请回答所有问题

教师报告调查问卷（六至十八岁）-2001 版

(Teacher' s Report Form for Ages 6 -18 - 2001 version)

工作人员使用

编号

本问卷是调查您某位学生的行为状况。您可能欠缺详细的资料，请您仍尽可能回答所有的问题。请随意在每项目旁及第三页的题目中写出您的评语。**请回答所有问题**

姓名:	籍贯: 出生地点:	父母通常的职业，即使现时没有工作 / 目前在待业中，请说明职业类别 例如：司机，教师，家庭主妇，工人，机械操作员，皮鞋售货员，警察。 父亲职业：_____ 母亲职业：_____ 此问卷之填报人（请填上您的姓名）
学生性别: <input type="checkbox"/> 男 <input type="checkbox"/> 女	学生年龄:	
填写日期: 年 月 日	学生出生日期（如果知道） 年 月 日	
就读班级:	学校名称及地址:	您的性别： <input type="checkbox"/> 男 <input type="checkbox"/> 女 您在学校的角色： <input type="checkbox"/> 教师 <input type="checkbox"/> 辅导员 <input type="checkbox"/> 特殊教育教师 <input type="checkbox"/> 行政人员 <input type="checkbox"/> 教学助理 <input type="checkbox"/> 其他（请列明关系）

1、您认识这个学生多久？_____月

2、您对他有/她有多了解？ 1. ☐不了解 2. ☐一般 3. ☐非常了解

3、他/她每周有多少时间上您的课或见您？

4、那是什么课？ / 那是什么原因见您？（请具体说明，如五年级常识、六年级数学、学习困难、辅导等）

5、他/她曾否被转介到特别班 / 特教班，接受辅导或特别教导？

☐不知道 0. ☐没有 1. ☐有——什么种类及何时？：_____

6、他/她曾否留级？

☐不知道 0. ☐没有 1. ☐有——年级及原因？：_____

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请回答所有问题，然后转到下一页

7、现时的学业表现——请列出学科名称及在适当的方格内以×表示该学生的成绩：

学科	远低于 同级水准	稍低于 同级水准	平均水准	稍高于 同级水准	远高于 同级水准
1. _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8、与同年龄一般学生比较

	1. 很差	2. 较差	3. 稍差	4. 一般	5. 较好	6. 较好	7. 很好
1. 是否努力读书？	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. 行为是否适当？	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. 学习到多少知识？	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. 是否表现得愉快？	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

9、最近的考试成绩（如果有的话）

考试名称	科目	日期	百分比或成绩

请回答所有问题，然后转到下一页

10、智商、意向或学能测试（如果有的话）

测试名称	日期	智商或同等的分数

是否有疾病、身体伤残或弱智？

☐不是

☐是

请说明

您最关心这学生的是什么？

请描述这学生之各项优点：

请在以下随意地书写有关这学生在学业上、行为上或潜能上的评语。

请回答所有问题，然后转到下一页

以下是一系列有关学生的描述。请根据该学生**现在或过往二个月内的表现**，评定下列每一项描述之准确程度：**非常准确或经常准确**，请圈 2；**接近或中等准确**，请圈 1；**不准确**，请圈 0。请尽量回答所有问题，即使有些题目似乎不适用于该学生。

0=不准确	1=接近或中等准确	2=非常准确或经常准确	
0 1 2	1. 行为幼稚，与年龄不符	0 1 2	26. 对自己的恶劣行为似乎不感到内疚
0 1 2	2. 在课堂上哼声、或发出怪声	0 1 2	27. 容易妒忌
0 1 2	3. 经常争辩	0 1 2	28. 犯校规
0 1 2	4. 不能从头到尾做完一件事	0 1 2	29. 害怕某些动物、场合或地方（不包括学校）
0 1 2	5. 没有什么事情令他/她有乐趣	0 1 2	请描述： _____
0 1 2	6. 与老师顶嘴	0 1 2	30. 害怕上学
0 1 2	7. 吹牛，爱夸口/自吹自擂	0 1 2	31. 害怕自己会产生坏念头或做坏事
0 1 2	8. 精神不能集中，注意力不能持久	0 1 2	32. 觉得自己必须十全十美
0 1 2	9. 脑海中老是重复走神想着某些事情，不能摆脱。请描述： _____	0 1 2	33. 觉得或抱怨没有人喜欢他/她
0 1 2	10. 坐立不安/难安，活动过多/过度好动或不能安坐/浮躁	0 1 2	34. 觉得别人存心为难他/她
0 1 2	11. 喜欢缠着或过分依赖大人	0 1 2	35. 觉得自己无用或自卑
0 1 2	12. 抱怨寂寞	0 1 2	36. 身体经常受伤，易生意外
0 1 2	13. 感到困惑，或茫然不知所措	0 1 2	37. 经常打架
0 1 2	14. 经常哭泣	0 1 2	38. 经常被人戏弄/嘲笑
0 1 2	15. 身体不停扭动	0 1 2	39. 爱和惹事生非的儿童/青少年来往
0 1 2	16. 对人冷酷，欺负他人，或对人刻薄，斤斤计较	0 1 2	40. 听到实际上不存在的声音或人声。请描述： _____
0 1 2	17. 好做白日梦，或沉迷在自己的思想中	0 1 2	41. 行事冲动，不经三思
0 1 2	18. 故意伤害自己或企图自杀	0 1 2	42. 喜欢独处多过与人一起
0 1 2	19. 要求别人经常注意他/她	0 1 2	43. 说谎或欺骗
0 1 2	20. 破坏自己的东西	0 1 2	44. 咬指甲
0 1 2	21. 破坏别人的东西	0 1 2	45. 神经过敏或紧张
0 1 2	22. 难于按照批示做事		
0 1 2	23. 在学校不听话		
0 1 2	24. 骚扰其他学生		
0 1 2	25. 与其他学生合不来		

请回答所有问题，然后转到下一页25

0=不准确	1=接近或中等准确	2=非常准确或经常准确
0 1 2 46. 动作紧张或肌肉抽搐/痉挛。 请描述： _____ _____	0 1 2 63. 喜欢和年龄较大的儿童/青少年一起	
	0 1 2 64. 喜欢和年龄较小的儿童/青少年一起	
0 1 2 47. 过分拘泥规矩	0 1 2 65. 拒绝与人交谈	
0 1 2 48. 不受其他同学喜欢	0 1 2 66. 不断重复某些动作。请描述： _____ _____	
0 1 2 49. 有学习困难		
0 1 2 50. 过度恐惧或焦虑	0 1 2 67. 破坏课堂纪律	
0 1 2 51. 感到头晕	0 1 2 68. 经常尖叫	
0 1 2 52. 过于感到内疚	0 1 2 69. 隐私，保守秘密，有事不会说出来	
0 1 2 53. 插嘴	0 1 2 70. 看到实际上不存在的东西。 请描述： _____ _____	
0 1 2 54. 无故感到过分疲劳		
0 1 2 55. 身体过胖/体重过重	0 1 2 71. 很容易感到尴尬	
56. 过度恐惧或焦虑	0 1 2 72. 功课杂乱无章	
a. 身体痛楚（胃痛或头痛除外）	0 1 2 73. 行为不负责任。请描述： _____ _____	
b. 头痛		
c. 恶心想吐	0 1 2 74. 炫耀自己或扮小丑	
d. 眼睛有毛病（不包括可用眼镜 矫正之问题）请描述： _____ _____	0 1 2 75. 过分害羞或胆怯	
e. 出疹或其他皮肤病	0 1 2 76. 行为火爆，难以捉摸	
f. 胃痛	0 1 2 77. 要求必须立刻得到满足， 容易气馁	
g. 呕吐	0 1 2 78. 注意力分散或容易分心	
h. 其他，请描述： _____ _____	0 1 2 79. 有言语问题。请描述： _____ _____	
0 1 2 57. 攻击他人身体	0 1 2 80. 目光呆滞	
0 1 2 58. 挖鼻孔，抓弄皮肤或身体其 他部份。请描述： _____ _____	0 1 2 81. 被批评时感到受创伤	
	0 1 2 82. 偷窃	
0 1 2 59. 上课睡觉		
0 1 2 60. 缺乏朝气，做事提不起劲		
0 1 2 61. 作业质量差		
0 1 2 62. 动作不协调或笨拙		

请回答所有问题，然后转到下一页

0=不准确			1=接近或中等准确	2=非常准确或经常准确			
0	1	2	83. 囤积过多自己不需要/没有用的东西。请描述:	0	1	2	100. 不做功课
			_____	0	1	2	101. 旷课/跷课, 逃学
			_____	0	1	2	102. 不够活跃, 动作迟钝或精力不足
0	1	2	84. 行为古怪。请描述:	0	1	2	103. 不开心, 悲伤或沮丧
			_____	0	1	2	104. 过分吵闹
			_____	0	1	2	105. 滥用酒精或药物 (不包括烟草)。请描述:
0	1	2	85. 思想古怪。请描述:				_____
			_____				_____
0	1	2	86. 固执, 闷闷不乐或易怒	0	1	2	106. 急于讨人喜欢
0	1	2	87. 情绪/心情或感受会突然变化	0	1	2	107. 不喜欢上学
				0	1	2	108. 害怕犯错
0	1	2	88. 经常闹情绪	0	1	2	109. 发牢骚
0	1	2	89. 多疑	0	1	2	110. 外表不整洁
0	1	2	90. 诅咒别人或讲粗口/说脏话	0	1	2	111. 退缩, 不合群
0	1	2	91. 谈及自杀	0	1	2	112. 有忧虑
0	1	2	92. 成绩不理想, 没有充分发挥潜能	0	1	2	113. 如果该学生有其他问题不在上列之中, 请在下面描述:
0	1	2	93. 说话过多	0	1	2	a. _____
0	1	2	94. 常戏弄他人				_____
0	1	2	95. 大发脾气, 或脾气暴躁	0	1	2	b. _____
0	1	2	96. 对性的问题想得太多				_____
0	1	2	97. 恐吓他人	0	1	2	c. _____
0	1	2	98. 上课迟到, 没精打采				_____
0	1	2	99. 吸烟, 嚼烟, 吸鼻烟				

请回答所有问题

Appendix G

Student's Sense of Quality of School Life Questionnaire (English version)

Dear student,

Thanks for your time for taking this survey. It is about quality of school life of primary school students. Please answer the questions according to your own status. This survey is anonymous so you do not have to worry about your answers that might affect your relationship with teachers or your parents. There is no right or wrong for your answers. Your answers will be secured and only used for research.

Instructions: The following 40 statements describe your life in your school. For each statement, please select **ONE** answer among 'Completely agree', 'Agree', 'Completely disagree' or 'Disagree', and add a '√' or '×' in the box.

		Completely agree	Agree	Completely disagree	Disagree
1.	My school is a place where I really like to go each day.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.	My school is a place where my teacher is fair to me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	My school is a place where I learn to get along with other people.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.	My school is a place where I am a success as a student	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.	My school is a place where I feel unhappy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.	My school is a place where other students accept me as I am	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.	My school is a place where I know how to cope with the work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.	My school is a place where I like to be	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.	My school is a place where the work is a good preparation for my future	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.	My school is a place where I like to do extra work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11.	My school is a place where I feel happy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12.	My school is a place where the things I learn are important to me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.	My school is a place where learning is fun	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14.	My school is a place where I feel lonely	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.	My school is a place where things I learn will help me in secondary school	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16.	My school is a place where I am good at school work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17.	My school is a place where I feel proud to be a student	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18.	My school is a place where I feel worried	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19.	My teacher takes an interest in helping me with my work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20.	My school is a place where people trust me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

21.	My school is a place where I have a lot of fun	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22.	My school is a place where my teacher listens to what I say	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23.	My school is a place where I enjoy what I do in class	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24.	My school is a place where I am popular with other students	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25.	My school is a place where I can learn what I need to know	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26.	My school is a place where I know I can keep up with the work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27.	My school is a place where I get excited about the work we do	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28.	My school is a place where I get upset	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

		Completely agree	Agree	Completely disagree	Disagree
29.	My school is a place where I know people think a lot of me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30.	My school is a place where I get on well with the other students...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31.	My school is a place where what I learn will be useful	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32.	My school is a place where the work we do is interesting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
33.	My school is a place where I get enjoyment from being there	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
34.	My school is a place where my teacher helps me to do my best	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
35.	My school is a place where people can depend on me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
36.	My school is a place where other students are very friendly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
37.	My school is a place where I feel restless	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
38.	My school is a place where my teacher treats me fairly in class	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
39.	My school is a place where what I learn will be useful to me when I leave school	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
40.	My school is a place where I achieve a satisfactory standard in my work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Adapted from The School Life Questionnaire from Ainley, Goldman and Reed (1990). Primary schooling in Victoria: A study of students' attitudes and achievements in Year 5 and 6 of government primary schools (pp 117-121). Hawthorn: Australian Council for Educational Research.