A Single Case Study on Providing

Peer Support and Whole Class Strategies

as Interventions for Children Who Are Experiencing

Difficulty with Their Attention (Concentration)

in the Classroom

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ABSTRACT

Many students are struggling with attention in class. On the other hand, many teachers are struggling with using their limited time to support students with diverse needs. The purpose of the research project is to explore and develop effective intervention strategies that teachers can use at a low cost to support students who are experiencing difficulty with their attention (concentration) in the classroom so as to promote inclusiveness in education.

The terms 'Peer Support' and 'Whole Class Strategies' are nothing new. Yet this study used a relatively new way to use Peer Support and Whole Class Strategies as interventions to improve on-task behaviour of primary students who struggled with attention. A single case experimental design was adopted to investigate the impacts of the interventions. Four Year 5 students, the Class Teacher and the school's SENCo participated in using the strategies. The effectiveness of the strategies and the experience of using them from the student and teacher participants' perspectives were explored by mixed methods. Systematic observation was used to collect quantitative data on the student participants' time-on-task rates over different intervention phases while semi-structured individual interviews were conducted to collect qualitative data on the participants' experiences.

Results showed that marked improvements in the time-on-task rates were found in all participating students when each of the intervention strategies was implemented. Triangulation of data from students' perspectives supported the conclusion that both strategies were effective.

However, the Class Teacher's view only supported the effectiveness of Whole Class Strategies, but not Peer Support. Analysis of qualitative data further revealed how the participants interacted with the intervention strategies. Several main themes generated from the student participant's interview data on Peer Support were related to executive functions which echoed with the literature on attention difficulties. Thematic analysis of teacher participants' interview data suggested that evaluation of the effectiveness of Peer Support might had been modulated by expectations.

Key terms: attention difficulties, intervention, peer support, whole class strategies, single case design, systematic observation, interview, thematic analysis

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ABBREVIATIONS

Abbreviations Used Specifically in this Study:

CT	Teacher participant - the Class Teacher
SC	Teacher participant - the SENCo
W	Student participant - W
X	Student participant - X
Y	Student participant - Y
Z	Student participant - Z
P-W	Peer supporter - supporting W
P-X	Peer supporter - supporting X
P-Y	Peer supporter - supporting Y
P-Z	Peer supporter - supporting Z
TALK	Classroom activity - teacher talking to the whole class
Q&A	Classroom activity - teacher using a question and answer method of teaching to the whole class
INDI	Classroom activity - students working individually without concrete resource support
GP	Classroom activity - students working in pairs/groups without concrete resource support
R+INDI	Classroom activity - students working individually with concrete resource support
R+GP	Classroom activity - students working in pairs/groups with concrete resource support

Other Abbreviations:

ADHD	Attention Deficit Hyperactivity Disorder
EF	Executive function
EP	Educational Psychologist
PND	Percentage of Non-Overlapping Data
SEN	Special educational needs
SENCo	Special Educational Needs Coordinator
SMD_{all}	Standard Mean Difference, utilising all intervention data points

Chapter 1. INTRODUCTION

1.1 Background of the Study

Attention is invaluable in everyday life. It relates closely with human beings' psychological state including arousal, perception, cognition and affect. It is essential in our daily life. If a person lacks the ability to maintain attention, his/her normal functioning in the various aspects such as intellectual, behavioural and emotional development will be affected significantly.

There are a large number of children and young people struggling with attention. A meta-regression analysis of studies published between 1978 and 2005 reported that the worldwide prevalence estimates of Attention Deficit Hyperactivity Disorder (ADHD) or Hyperkinetic Disorder for participants 18 years of age or younger was 5.29% (Polanczyk, de Lima, Horta, Biederman, & Rohde, 2007). Another systematic review on the worldwide prevalence of ADHD that includes studies published after 2005 generated estimates in children and adolescents ranging from 5.9% to 7.1% (Willcutt, 2012). If we also consider children who are children who are experiencing difficulty with their attention but have not yet met the assessment criteria of ADHD or Hyperkinetic Disorder, the percentage of children in need would be much higher than the above estimates.

Many children with ADHD face difficulties in different domains in their life. Children diagnosed with ADHD were found to have significantly lower scores in standardized achievement tests compared to their typically

developing counterparts (Frazier, Youngstrom, Glutting, & Watkins., 2007). ADHD with executive function deficits was found to be associated with a higher risk for grade retention and a lower academic achievement, and that effect was independent of socioeconomic status, learning disabilities and intelligence quotient (Biederman, Monuteaux, Doyle, Seidman, Wilens, Morgan, & Faraone, 2004). Moreover, children and young people with ADHD were found to display more disruptive behaviour in classrooms and difficulties in peer relationships (Van der Oord, Van der Meulen, Prins, Oosterlaan, Buitelaar, & Emmelkamp, 2005; Wehmeier, Schacht, & Barkley, 2010). Given the risk factors for problems in intellectual, social and behavioural development, there is a need to provide additional support or intervention strategies to children who are experiencing difficulty with their attention.

During my placement work as a Trainee Educational Psychologist (EP), I received a number of requests from different schools regarding their students' difficulties with attention in class. In most cases, the schools and/or parents wanted assessment reports from me to support with the process of obtaining Educational, Health and Care Plans for their children. From my work experience, many of the EP's time has been deployed in conducting assessments and writing reports for statutory purposes. On the other hand, many schools tend to use additional funding to employ more teaching assistants to work in one-to-one or one-to-few basis groups as the way to support students with special educational needs (SEN). However, studies have shown that high levels of support from teaching assistants have a negative impact on the academic progress of the pupils with SEN compared

with their counterparts (Blatchford, Webster, & Russell, 2012) and also affect their opportunities for peer interaction in the classroom (Webster, 2015).

A teacher's role is crucial in the process of providing support to children with diverse learning needs. Research has revealed that teacher factors can have profound impacts on achievement and behavioural outcomes of children with ADHD (Sherman, Rasmussen, & Baydala, 2008). However, teachers are found to often focus on identifying deficits rather than providing appropriate interventions to support students with ADHD (Bartlett, Rowe & Shantell, 2010). A research study shows that the strategies used by teachers most frequently are not all of the ones identified to be most effective in supporting students with ADHD. Major reasons for not using those well-tested strategies were: they were inappropriate for the student; there was insufficient time; and they needed for more training (Walker, 2013). There is a gap between theories and frontline practices.

1.2 The Role of Educational Psychologists

Farrell (2000) points out that the aim of inclusive education is to encourage schools to reconsider their structure, teaching approaches, groupings of students and use of support so that the needs of all pupils are met. Inclusive education can only be achieved when schools are committed to maximise inclusion and minimise exclusion. Ainscow (1997) contends that special needs teachers have to acquire the competencies that enable them to work towards developing appropriate environments for all children in which individual differences are valued rather than to work intensively with individual or small groups of children with SEN.

I believe a major role EPs is to support teachers in creating an inclusive environment in the school to meet students' diverse needs. I hope that through this study, some intervention strategies that teachers can use to support students who are experiencing difficulty with their attention in a mainstream classroom environment will be developed and their impacts on the students and teachers investigated. Although research literature on children who experience difficulty with their attention mainly focuses on ADHD, the target student participants of the study were not restricted to those who had already been diagnosed with ADHD.

1.3 Structure of the Thesis

Chapter 2 reviews the research literature concerned with meanings of and varieties of attention, major theories of attention, insights from studies on ADHD and interventions strategies suggested by research to improve attention behaviour. The two types of intervention to be investigated in the study are then explained.

In Chapter 3 my ontological and epistemological positions are presented and my choice of using mixed methods in the form of a single case design is explained. Then, the details of research participants, implementation of the intervention strategies, methods of collecting quantitative and qualitative data, and methods of data analysis are explained. The ways to improve the validity and reliability of the study and the ethical considerations of the study are also described in Chapter 3.

The analysis of the quantitative and qualitative data is reported in Chapter 4 which provide graphical and statistical information on the

effectiveness of the two types of intervention, and interpretations of the themes related to the students' and teachers' experience in the use and implementation of the strategies.

Chapter 5 discusses research findings, implications of the study, and evaluation of the research method and process. The limitations of the study are described in Chapter 6. Finally, in Chapter 7, the significance of the study and the implications to Educational Psychologists are discussed, and the directions for future research are suggested.

Chapter 2.   LITERATURE REVIEW

2.1   Meanings and Varieties of Attention

William James (1890) describes attention as "the taking possession by the mind, in clear and vivid form, of one out of what seem several simultaneously possible objects or trains of thought" (p. 403-404). He claims that focalization and concentration of consciousness are the soul of attention.

There are different ways to classify attention. James (1890) proposes a functional taxonomy of attention in which six possible varieties in attention under three polar constructs are outlined: 'sensorial attention' (attention which is directed to stimulus from physical objects, for example visual attention, auditory attention and tactile attention) or 'intellectual attention' (attention which is directed to ideal or represented objects such as ideas and memories); 'immediate attention' (attention which is directed by the stimulus itself) or 'derived attention' (attention which is directed by the signal value of the stimulus); and 'passive attention' (attention which is non-voluntary and is the reflexive outcome of a stimulus) or 'active attention' (attention which is voluntary and is initiated by the person himself/herself).

Some researchers distinguish between bottom-up attention and top-down attention. The former refers to the situation when attention is driven by the sensory input data and functions in an automatic and unconscious manner, while the latter refers to the situation when attention is driven by goals and functions in a conscious manner (Eysenck & Keane, 2013).

Bottom-up attention is similar to James's (1890) passive attention while top-down attention is similar to active attention.

Attention can also be classified according to its functions. For example, 'focused attention' refers to the ability to attend to a particular task or stimulus at hand while 'sustained attention' refers to the ability to maintain attention to the same task over an extended period of time. When there are multiple stimuli, if a person selects one stimulus to attend to and neglects other competing stimuli, such attention is called 'selective attention'; if a person attends to more than one stimulus simultaneously, such attention is called 'divided attention'; if a person shifts his/her focus of attention and moves between tasks, the attention is called 'alternating attention' (Eysenck & Keane, 2013; Sohlberg & Mateer, 2001).

Some researchers believe it is premature to suggest any exhaustive set of classification for attention. They would rather emphasise the major components of attention. Posner and Boies (1971) propose alertness, selectivity, and processing capacity as the three major components of attention. Parasuraman (2000) suggest another three terms: selection, vigilance, and control. Both alertness and vigilance refer to a state of being sensitive to external stimulation. Selectivity and selection both mean choosing a stimulus and giving up others, implying a goal-directed behaviour. According to Posner and Boies (1971), processing capacity is important because any two stimuli requiring the limited capacity would interfere with each other. Parasuraman (2000) believes that control is important for a goal-directed behaviour to be maintained.

2.2 Major Theories of Attention

2.2.a Information Processing Model

The information processing model is used by cognitive psychologists to explain human beings' mental processes. According to this model, information gathered from external stimuli is stored and processed by the brain, and then the processing result is exhibited through human behaviour. The mental process of human brains involves different stages that are arranged in temporal order. When a human being receives an external stimulus through its sensory organ, the information is temporarily held in the sensory register of the brain. This process is usually unconscious and lasts for a very short amount of time. The information in the sensory register will decay and disappear very quickly unless it is recognised and stored in the short-term memory. The information held temporarily in the short-term memory can be used before it decays. However, the information deteriorates quickly if it cannot enter into long-term memory. When the information stored in short-term memory has been used repeatedly, it becomes automatic and may be transferred and stored in long-term memory (Atkinson & Shiffrin, 1968; Reed, 2004).

Attention plays an important role in the mental process described above. Since a large volume of information may enter the sensory register at the same time and the information will decay very quickly, there is a control process in the sensory register. The subject has to select which information is to be attended to (Atkinson & Shiffrin, 1968; Reed, 2004).

2.2.b Bottleneck Theories

Broadbent (in Reed, 2004) finds that when participants were asked to attend to different voice messages simultaneously, a lower percentage of correct messages were reported. He proposes a bottleneck theory which suggests that a bottleneck exists when two stimuli simultaneously enter a person's sensory register. To prevent the limited capacity from being overloaded, the stimuli are filtered according to their physical characteristics such as pitch and location of source so that only one stimulus is allowed to pass through the channel for further processing in the pattern recognition stage. The unselected stimulus will stay in the sensory buffer until it is processed when the capacity in the filter becomes available again.

Treisman (1960) modified Broadbent's model to propose the attenuation theory. In her model, both stimuli are processed in the pattern recognition stage. The unattended stimulus is not totally blocked but just attenuated. If a voice message matches with a known word kept in the person's mental dictionary, it is more likely to go through the filter and be recognized. Moreover, a stimulus that matches with one of the important words of the person has a lower threshold for activation and thus is more easily recognized.

2.2.c Capacity Theory

According to Kahneman's (1973) capacity theory, the reason for the existence of interference generated by simultaneous activities is the competition of limited cognitive capacity among different activities, not the filter mechanism. To Kahneman, attention is a kind of cognitive effort and

different types of activities require different amounts of cognitive effort in maintaining attention. If a person allocates a sufficient amount of cognitive effort to a certain activity that meets its demand, performance of that activity can be maintained. Otherwise, performance will decline. Moreover, the total amount of attention resources available to a person varies with his/her arousal level. The person's choice in the allocation of cognitive capacity among different activities is affected by two factors: enduring dispositions which refers to involuntary attention allocation; and momentary intentions which refers to the specific goals at that moment of time.

2.3   Having Difficulty with Attention and Insights from Studies on ADHD

2.3.a   Attention Difficulties

Attention difficulties do not just refer to an inability to sustain attention. Inattention is a complex set of cognitive processes that may refer to difficulties with different functions of attention such as focused attention, sustained attention, selective attention and divided attention (Goldstein & Goldstein, 1990).

Studies on inattentive children have captured many researchers' interest since the 1960s. Terminology of the 1960s emphasized the motor component of the disorder and terms such as hyperactive and hyperkinetic were commonly used (Parker, 1992). Children who present with attention difficulties are perceived as those who fidget a lot and cannot sit still. The term 'Attention Deficit Disorder' (ADD) was introduced in 1980 to name the

group of children with severe attention difficulties as researchers realized that inattention, not hyperactivity, was the most important feature of the problem. Currently, the name 'Attention Deficit Hyperactivity Disorder' (ADHD) is used to describe people whose level of inattention, impulsiveness and/or hyperactive behavior is such as to interfere with their daily functioning. However, not all children with attention difficulties are hyperactive. Children who show characteristics of inattention but not hyperactivity-impulsiveness are described as having ADHD Inattentive Type (Barkley, 2015).

ADHD has received extensive research attention in the past decades. However, there have been controversies surrounding ADHD. While many researchers assert that ADHD is a medical disorder with a strong genetic and neurological basis, others believe that ADHD is a social construct which is invented to explain behaviour that does not match with the social norm (Ryan & McDougall, 2009; Hinshaw, 2018; Timimi & Taylor, 2004). Researchers who adopt the medical model of ADHD believe that stimulant medications are suitable treatments for children with ADHD (Barkley, 2015). Researchers who take the social construction view of ADHD oppose using medications. They criticize the practice of medicating children with potentially dangerous drugs and argue that such practice would create unnecessary dependence on doctors which in turn make all people, including parents and teachers, disengage from their social responsibility in supporting children to develop socially accepted behaviour (Timimi & Taylor, 2004).

The above ADHD controversies can create difficulties for EPs. Providing professional views on the causes of a child's observed behaviour and on the recommendations to effectively support the child are the major

roles of an EP. However, when an EP's view on the ADHD construct and that of the parents or other professionals are polar opposite, disagreement or even conflict over the child's needs and appropriate provisions might occur.

Some researchers propose a comprehensive understanding of ADHD. They suggest multiple levels of analysis in understanding ADHD that include genetic, biological, psychosocial and environmental factors. They contend that the various forces must be synthesized to avoid a reductionist approach, to reduce stigma and to maximize treatment outcome (Ryan & McDougall, 2009; Hinshaw, 2018).

There are many possible reasons for children to display inattentive behaviour in the classroom. For example, children who feel bored of a certain subject will find it difficult to concentrate. Children who have experienced trauma, abuse or neglect in their early lives may also appear to be inattentive in their classrooms. Therefore, it cannot be concluded that all children who are identified to have difficulties with their attention in the classroom have 'attention difficulties' per se.

Although children who experience difficulty with their attention are not necessarily having attention difficulties and children with attention difficulties are not confined to those who have already been diagnosed with ADHD, research on ADHD provides us with insights in understanding the psychological mechanism that hinder children's attention performance and suggest effective intervention strategies to help improve children's attention behaviour, whether or not they are diagnosed with ADHD.

2.3.b Theoretical Models of ADHD

Teeter (1998) summarises the cognitive interactional model, behavioural inhibition model, and the transactional neurodevelopmental model which are the three main theoretical models formulated by researchers to explain ADHD.

In the cognitive interactional model introduced by Douglas (in Teeter, 1998), an integrated perspective is used to understand the processes involved in ADHD. It is proposed that primary-process deficits of ADHD including attentional, arousal, inhibitory and reinforcement deficits result in secondary-process deficits such as impaired development of higher-order reasoning and impaired metacognition. The primary-process deficits are interrelated and vary across individuals. Douglas (in Teeter, 1998) contends that attention comprises three processes related to self-regulation, including maintaining attention over time, organising and self-directing attention, and investing effort to attend to tasks. The presence of difficulties in a self-regulation and self-direction contribute to impaired attention and is a central feature of ADHD. Hence, ADHD is viewed as self-regulation deficit disorder by many researchers.

In the behavioural inhibition model proposed by Barkley (2011, 2015), behavioural disinhibition is viewed as the crucial deficit that affects executive functions including: working memory; self-regulation of affect, motivation, and arousal; internalization of speech; and analysis and synthesis. When there is a new stimulus, both activating and inhibiting response processes are triggered in the brain and they compete to be executed first. If inhibition is dysfunctional, the executive functions are hampered and the individual will

find it hard to maintain attention effectively. Barkley suggests that the resultant deficits in self-regulation will induce further deficits in behavioural disinhibition as self-regulation enhances restraint or inhibition, thus creating a vicious cycle.

The transactional, neurodevelopmental model proposed by Teeter and Semrud-Clikeman (1995) contends that brain development and brain function are affected by biogenetic and environmental factors that includes school and home. Subtle brain anomalies, particularly those in executive control, have consequences on attentional functioning. In this model, biogenetically based vulnerabilities interact with and affect the environment, and in turn the environment can also modulate these biogenetically based vulnerabilities.

The cognitive interactional model and the behavioural inhibition model both imply that executive function of human brains plays an important role in attention problems. Executive function (EF) is a term used to refer to a variety of cognitive processes, including planning, working memory, attention, inhibition, self-monitoring, self-regulation and reflection (Goldstein, Naglieri, Princiotta, & Otero, 2014). There are many definitions of EF. Some researchers suggest that its common-ground definition has four components: goal formation; planning to achieve the goal; execution of the goal-related plans; and monitoring performance and adjustment of plans (Jurado & Rosselli, 2007; Chandler, 2011). EF provides the mechanism for self-regulation. Since it relates to the functions of brain circuits that prioritise, integrate and manage other cognitive functions, EF is described as a

collection of high-level cognitive processes that control and regulate other lower-level processes (Chandler, 2011).

A meta-analytic review has shown that groups with ADHD exhibit significant impairment on all executive functioning tasks (Willcutt, Doyle, Nigg, Faraone, & Pennington, 2005). Brown (2013) drawing on the research findings in ADHD contends that ADHD is a developmental impairment of EF. Brown identifies six clusters within the domain of EF and suggests that individuals with ADHD have manifest difficulties in several clusters. The cluster 'Activation' refers to organising tasks, prioritising, and activating to work; 'Focus' refers to maintaining concentration and shifting attention to tasks; 'Effort' refers regulating alertness, sustaining effort, and processing speed; 'Emotion' refers to managing frustration and moderating emotions; 'Memory' refers to utilising working memory and accessing recall; and 'Action' refers to monitoring and self-regulating action. Brown views EF as developmental since these functions emerge incrementally from birth to early adulthood.

Brown's (2013) new model of ADHD shares some common ground with the cognitive interactional and behavioural inhibition models in the sense that they all emphasise the importance of EF/self-regulation in understanding ADHD. His new model treats ADHD as a developmental impairment of EF rather than a disorder. Such perspective implies that changes and developments are possible. It shares with the transactional, neurodevelopmental model in the sense that both models provide a strong ground for planning interventions. With Brown's developmental perspective on ADHD, children who struggle with attention difficulties may have immature

EF development, but only those who have serious impairments of EF development and meet the criteria of ADHD would be diagnosed with ADHD. The insights gained from the studies on ADHD would be helpful to support students with attention difficulties, no matter if they are diagnosed with ADHD.

2.3.c Intervention for Children with ADHD

A variety of interventions have been found to be effective in supporting children with ADHD. Apart from medication treatments, behavioral interventions, direct training and academic intervention are commonly used.

Behavioural interventions aim at modifying the behaviour of the students with ADHD as inattentive or even disruptive behaviour are often displayed. There are two types of strategies in behaviour interventions: antecedent-based or proactive strategies; and consequence-based or reactive strategies (DuPaul, Weyandt, & Janusis, 2011; DuPaul & Stoner, 2014). Antecedent-based strategies focus on ways to prevent inattentive and disruptive behaviours from occurring. For example, DuPaul et al. (2011) suggest having classroom rules clearly explained to the students with ADHD, to reduce the length of assignments so as to match their attention spans, and to provide them with task choices. Jones (1994) discusses strategies such as modifying the classroom environment so that unhelpful distractions would be removed, making suitable seating arrangements, using peer models, having clear schedules, organising classroom materials, and adding colour cues to written work. Dehn (2014) suggests using instructional approaches that reduce cognitive load to support working memory and enhance EF, such

as using simple and concise language, presenting materials both verbally and visually, providing materials that allow the students to focus on processing, and providing worked examples or partially completed examples. Wodrich (1994) suggests checking to ensure understanding, capitalizing on strengths and avoiding weakness. Taylor (2007) recommends instructional accommodations such as increasing novelty and interest level of the tasks, including practical tasks, and setting up a personal cueing signal. These strategies aim at proactively reducing inattentive or disruptive behaviour of students with ADHD. Consequence-based strategies focus on manipulating environmental events after a specific behaviour occurs so as to either reduce or increase the probability of future occurrence such as removing from classroom when inappropriate behaviour is displayed and using token reinforcement to reward appropriate behaviour (DuPaul et al., 2011). In using consequence-based strategies, peer monitoring within a group contingency may be used in which peers are trained to monitor each other instead of having the teacher to do the monitoring job (Davies & Witte, 2000).

There are different types of direct training on attention such as executive functioning skills training, attention training using equipment support, and mindfulness training. Self-regulation training that helps children develop self-monitoring, self-management, self-evaluation and/or self-reinforcement skills are the most common executive functioning skills training (Reid, Trout, & Schartz, 2005). An attention training system is a way to provide direct training with equipment support. The system comprises of an electronic device that is placed on the student's desk to help deliver feedback to their attention performance. The device displays cumulative points earned

by the student and automatically awards a point every minute. If the student is off-task, the teacher may activate a small remote-control device so that a signal will appear on the student's module and a point will be deducted from the accumulated total. The student will be rewarded based on the accumulated points he/she gets and his/her behaviour is regulated with the help of this external device (Gordon, Thomason, Cooper, & Ivers, 1991). Direct training with neurofeedback uses equipment to show the changes in brainwave patterns on a computer screen. Children receiving the training get immediate feedback on how their brains are focusing. With practice they learn how to maintain focus (Steiner, Frenette, Rene, Brennan, & Perrin, 2014). Mindfulness training helps children with ADHD to be more aware of their 'here and now' emotions, thoughts and actions. With practice the children develop a state of restful alertness while focusing attention (Tang & Posner, 2009).

Academic interventions include direct instruction in relevant academic skills; task and instructional modifications; computer assisted instruction; and peer tutoring (DuPaul et al., 2011). Peer tutoring requires students to learn in pairs in which one student provides instruction or support to another student and gives frequent feedback. Research findings suggest that peer tutoring is effective in increasing the active engagement of academic tasks and enhancing sustained attention of students with ADHD, and also possibly in improving their social interactions (DuPaul, Ervin, Hook, & McGoey, 1998; DuPaul & Stoner, 2014).

2.4 Intervention Strategies to be Investigated in the Study

Two different types of intervention were investigated in this study: Peer Support and Whole Class Strategies. Their key elements are shown in Figure 1. Details are explained in the following sections.

Figure 1.   Summary Notes on Peer Support and Whole Class Strategies

Peer Support

It is an intervention strategy that support students with attention difficulties through their peers.

When the student with attention difficulty was off-task, his/her peer supporter would give him/her a friendly reminder.

- Designed by the researcher
- Modified from the attention training system
- Using peers as intervention agents and sharing some characteristics of other peer-mediated programmes such as peer monitoring and peer tutoring

Whole Class Strategies

It is an umbrella term that represents all forms of intervention strategies that can be used with the whole class of students in supporting target students who have attention difficulties.

More than one form of Whole Class Strategies were implemented simultaneously over the intervention period and the impacts of the strategies were studied collectively under the umbrella term 'Whole Class Strategies'.

- Compiled by the researcher
- Included:
  a. antecedent-based strategies under behavioural interventions;
  b. strategies based on motivation theories;
  c. strategies that helped engage students based on theories on effective teaching

2.4.a Peer Support

The method Peer Support used in this study is not the same as peer tutoring. It is in fact a modification of the attention training system using peers as intervention agents.

Peer tutoring used in many studies is carried out in a whole class format. It requires a change in teaching approach to create opportunities for students to learn from each other. Academic scripts such as math problems with answers are provided for the peers to work on and the teacher monitors tutoring pairs to check if they are following prescribed procedures of peer tutoring (DuPaul & Stoner, 2014). However, Walker's (2013) study has revealed that many teachers do not use certain strategies in supporting their ADHD students because they feel that they do not have enough time or they need more training, even though such strategies are tested to be effective. Although peer tutoring is beneficial to children who have difficulty with their attention, I want to use a strategy that is simple and more likely to be implemented by teachers in the future. The attention training system is simple to use. However, the financial cost of an electronic device used in the system is quite high and the system requires the teacher to constantly monitor the behaviour of the student who struggles with attention. Therefore, I modify the attention training system and plan to have a peer to act as an external agent instead of the electronic device in providing feedback to the child in need.

The strategy Peer Support used in the study required a teacher to find a suitable student to be the peer supporter of the child who struggles with attention. When the child who struggles with attention (the student

participant) was off-task, his/her peer supporter would give him/her a friendly reminder. The friendly reminder might be a verbal reminder (saying a few words), a gesture reminder (using body language), a written reminder (showing a card with a few words), a picture reminder (showing a card with some pictures), a mixture of the above ways, or any other creative method that was accepted by the student participant, his/her peer supporter and the teacher.

In order to reduce any possible negative affect created during the process, both the child struggling with attention and the peer supporter have to get a mutual consent about their roles beforehand. Some guidance would be provided to help them decide what the friendly reminder looks like. Since I would not suggest the regular award of points by the peer supporter to the child in need at regular intervals, the strategy Peer Support does not record any accumulated points as the attention training system does. Its function is mainly serving as an external feedback when the child who struggles with attention is not able to self-monitor.

Peer Support in the study is not the same as the strategy peer monitoring which is used within a group contingency and is a form of consequence-based strategy of behavioural interventions (Davies & Witte, 2000). The peer supporters in the study do not work with the student participants in a group setting, do not monitor each other group members' behaviour and do not reward positive behaviour as suggested in a peer monitoring strategy. However, Peer Support in the study does share some of the characteristics of a peer monitoring strategy and other peer-mediated programmes that use peers as intervention agents (Smith & Fowler, 1984).

2.4.b Whole Class Strategies

Many researchers recommend using antecedent-based strategies with ADHD students as a form of behavioural intervention to reduce their inattentive or disruptive behaviour. Such practice is usually viewed as of use with specific students in need. In fact, most of these strategies can be used with the whole class and not just individuals. Since all school age children are developing their executive functions, these strategies would benefit all students in improving their attentive behaviour. Therefore, I use the term 'Whole Class Strategies' to replace the name 'antecedent-based strategies' to reflect their nature.

Various researchers have suggested different ideas of antecedent-based strategies, as described in Section 2.3.c. I tried to compile the strategies and organise them into categories so that teachers can comprehend them more easily. Apart from the ideas found in literature on ADHD, I included a few strategies based on motivation theories such as providing meaningful tasks, providing challenging yet capable of accomplishment tasks (Franken, 2002), and strategies that help engaging students in the learning process based on theories of effective teaching such as the provision of interactive teaching and the application of co-operative learning (Muijs & Reynolds, 2001; Croll & Hastings, 1996). Reinforcement as a form of consequence-based strategies is also included in the collection of Whole Class Strategies as they are suitable for all students and would help increase students' attentive behaviour.

Different forms of Whole Class Strategies are organised into five categories as: classroom environment; seating arrangement; learning tasks;

teaching and learning approach; and reinforcements. The various forms of strategy were outlined and presented to the teacher participants in the Professional Development Sessions (Appendix 1) before the intervention was implemented.

The term 'Whole Class Strategies' used in the study is an umbrella term representing various forms of intervention strategies that can be used with a whole class of students in supporting certain target students who are experiencing difficulty with their attention. This study aimed to investigate whether applying strategies with the whole class would support the target student participants' attention behaviour. Therefore, it was decided that the study did not just focus on one specific form of the strategy. Instead, 'Whole Class Strategies' were investigated. More than one form of 'Whole Class Strategies' were implemented simultaneously over the intervention period and the impacts of the strategies were investigated collectively under the umbrella term 'Whole Class Strategies'. The Class Teacher who was the teacher participant of the study was given the final say in deciding the specific forms of strategies to be implemented in the study.

2.5 Purpose Statement

The study aimed to investigate the impacts of Peer Support and Whole Class Strategies on students who are experiencing difficulty with their attention in a mainstream classroom setting. Apart from studying the effectiveness of the intervention strategies, the experiences of students and teachers in receiving/ implementing the interventions were explored so that factors contributing to the effectiveness or otherwise of the intervention strategies and issues associated with the implementation process could be understood.

The research questions for this study are:

1. How effective are the two types of intervention: Peer Support and Whole Class Strategies, in supporting students who are experiencing difficulty with their attention to stay on-task in a mainstream classroom setting?

2. In what ways are these strategies helpful or unhelpful from the students' perspective?

3. What are the teachers' experiences in implementing these strategies in a mainstream classroom?

Chapter 3.   METHODOLOGY

3.1   Epistemological Position

3.1.a   Ontology and Epistemology in Social Research

Research is a way of knowing or understanding. The researcher's views on the nature of being and the nature of knowledge are crucial factors that determine his/her choice of research method. Such philosophical aspects of ontology and epistemology has led to a great debate for decades in social research. As pointed out by Williams and May (1996), the philosophical positions about reality determine what is considered to be legitimate knowledge. Therefore, the epistemological perspectives of researchers are actually shaped by their ontological views.

Ontology, which is the study of being, concerns the nature of existence and what constitutes reality (Gray, 2013). As social entities are the focus in social research, researchers in this field inevitably face the question of whether social entities can and should be regarded as objective entities that have a reality external to them. There are two major types of theoretical perspectives regarding to the nature of social entities: objectivism and constructionism. Those who take an objectivist view and support a 'Yes' answer to this question believe that social phenomena and their meanings have an existence which is not dependent on social actors. A reality does exist and is external to the knowers. The researchers' job is to discover that reality. However, those who take a constructivist view and give a 'No' answer to the above question believe that social phenomena are totally dependent

on social interactions as they take place. It is the social actors, including the researchers themselves, who accomplish social phenomena and their meanings. Social reality is not a static, pre-given external fact, but constantly changes through the social interactions of actors. Knowledge is thus viewed as indeterminate (Bryman, 2016; Mertens, 2015; Walliman, 2006).

Epistemology, which is the study of knowledge, is concerned with the nature of knowledge, how we know things, and what we can regard as acceptable knowledge (Moser, 2002). There are different views on the pursuit of knowledge. Epistemological positions can be classified into two major categories: positivism and interpretivism. Researchers who support the notion of a priori truths in the social world tend to adopt a positivist perspective. They believe that knowledge is gained through intuition or deductive reasoning, and the aim of social research is to obtain objectively measurable data to test the hypotheses they generate. Researchers taking such a stance tend to use a quantitative approach in their studies. On the other hand, researchers who adopt an interpretivist perspective object the notion of a value-free reality in the social world. They believe that one can only experience the world through his/her perceptions. The researcher is not studying the social world from outside the system but is bound into the social situation that he/she is studying. They believe the aim of social research is to reveal how different people interpret the social world. Researchers taking such a stance tend to use a qualitative approach in their studies (Bryman, 2016; Mertens, 2015; Walliman, 2006).

3.1.b My Ontological and Epistemological Positions

I believe that human beings are complex entities. As suggested in psychological literature, human beings' behaviour, feelings and thoughts are influenced by various factors, including genetic, biological, environmental and social ones. I believe that all human beings share the same mechanism of how these factors function, for example, sharing the same nervous system that transmits impulses through neurons and synapses. The shared mechanism forms the basis for studies that aim at testing human behaviour and intervention treatments in an objective way. On the other hand, every human being is unique in the sense that each of them has a unique combination of genetic, biological, environmental and social factors that have interacted dynamically to portray that person. That means although the mechanism of how those factors work is the same in all human beings, when the input of the factors is unique, the outcome of human behaviour, feelings and thoughts may vary tremendously.

I believe that human beings and the social world are too complex to be fully understood by adopting either just a positivist or an interpretivist perspective. I believe that both are true, but each is not the whole of the truth. I think both positivism and interpretivism can be adopted to reveal different aspects of human behaviour. I would not restrict myself in choosing either a quantitative or a qualitative research design. I would choose research designs that are suitable and effective to answer my research questions. Moreover, I am not interested in the endless debate around metaphysical concepts such as truth and reality. I prefer creating knowledge through

actions that different people can accomplish together. These viewpoints are similar to the philosophical perspectives of pragmatists (Mertens, 2015).

However, regarding my theoretical and epistemological positioning, I would not claim myself as a pragmatist, nor a positivist or an interpretivist. I think everybody is unique. Those labels are just terms created to generalise the common features of the thoughts that many people share. I would say my philosophical stance shares some major features of pragmatism, at the same time shares some of the views of positivists and interpretivists.

3.2 Research Design

This research study adopted a mixed methods design. Both quantitative and qualitative data were obtained to answer the research questions. The study also used a single case design and had the characteristics of a naturalistic study.

3.2.a Mixed Methods

Creswell (2013) summarises that, in deciding upon the research design quantitative research is the best choice when the research problem concerns evaluating an intervention or identifying the factors that have impact on an outcome. Therefore, I mainly used a quantitative approach to collect data in answering my research question around the effectiveness of the strategies. For the research questions around the students' and teachers' experience in using those strategies, I adopted a qualitative approach to collect data since the results obtained in qualitative research can provide a deep understanding of a problem and uncover trends in the thoughts,

opinions, feelings or attitudes of individuals or groups (Bryman, 2016). Hence, a mixed methods design was chosen in this research study.

Creswell and Clark (2007) argues that mixed methods research is more than simply mixing the two approaches. It involves using both approaches in tandem to give the study a greater overall strength than that produced by either quantitative or qualitative research alone. In this research study, the two approaches were not just used separately to answer different research questions. They were used together to understand all of the research questions as a whole.

3.2.b A Single Case Experimental Design

Some researchers prefer using a group comparison design to test the effectiveness of an intervention. However, Bergin and Strupp (1970) point out that there exist many problems when group comparison design is used in applied social research, such as having group averages that do not represent the performance of any individual in the group, and practical problems in the recruitment of large number of participants who are identical for a certain type of disorder/difficulty. They propose a single case experimental approach as an alternative.

In single case experimental research, the mechanisms of change in the intervention process are isolated and thus the intervention effectiveness can be investigated. Single case experimental design is described as process research which is concerned with what goes on between the participant and the practitioner during the intervention instead of just the final outcome of the intervention (Barlow & Hersen, 1984).

The research aimed to study the impacts of intervention strategies that included both the intervention outcomes and the intervention process. Therefore, a single case design fitted my research objectives. It allowed me to have a more in-depth investigation of the intervention strategies so that the mechanism of change and the implementation process could be explored.

3.2.c   A Naturalistic Study

The current single case experimental design research was a naturalistic study. The participants were having their normal teaching and learning lives during the research study. Barlow and Hersen (1984) contend that one advantage of a naturalistic study for practitioners is that it does not greatly disrupt their daily activities. Practitioners are not restricted by precise definitions of an independent variable or random assignment of subjects. I believed that naturalistic study designs suit most educational psychologists who work as practitioners. The experience gained from conducting this piece of research would provide knowledge for other educational psychologists who might use naturalistic studies in their future research projects.

3.2.d   Overview of Research Design

The study adopted a single case design in which Peer Support and Whole Class Strategies were implemented and investigated in different phases. The study used systematic observation and interviews to collect quantitative and qualitative data to answer the three research questions. The overview of the research design is illustrated in Figure 2. Details are explained in the following sections.

Figure 2. Overview of Research Design

Phase I Baseline	Phase II Peer Support Implementing	Phase III Peer Support Withdrawn	Phase IV Whole Class Strategies Implementing	Phase V Whole Class Strategies Withdrawn
(over 5 days)	(over 9 days)	(over 12 days)	(over 6 days)	(over 5 days)
Systematic Observation (3 days)	Systematic Observation (5 days)	Systematic Observation (3 days)	Systematic Observation (4 days)	Systematic Observation (cancelled)
	Peer Support Sessions	Interview Student Participants		Interview Student Participants
		Professional Development Sessions		Interview Teacher Participants

Research Questions (brief version):

Q1. How effective are the interventions?

Q2. In what ways are the interventions effective or ineffective from the students' perspectives?

Q3. What are the teachers' experiences and views in implementing the interventions?

Research Methods:

Systematic Observation	Quantitative Data for Q1
Interview	Qualitative Data for Q1, Q2 & Q3	Quantitative Data for Q1

3.3 Participants

There were two types of participants in this study: student participants and teacher participants. Student participants were students who were experiencing difficulty with their attention and received intervention support. Teacher participants included the class teacher of the student participants and the SEN Coordinator (SENCo) of the school. All participants were in the same mainstream primary school and all student participants were learning in the same class.

3.3.a Participant Selection

The student participants were selected according to the criteria that they were:

- learning in a mainstream primary classroom (not receiving additional support on one-to-one or a small-group basis);

- being judged by their class teacher of displaying frequent inattentive behaviour in class;

- having self-appraisal of struggling with attention in class;

- having no other SEN apart from experiencing difficulty with attention, hyperactivity and/or behavioural problems;

- willing to improve their attention in class; and

- having received parental consent.

As the student participants were provided with friendly reminders by their peer supporters, the intervention strategy would be effective only when

the peer supporters had reached a certain level of cognitive and dispositional maturity. Therefore, Year Four to Year Six primary students were targeted in this study.

The teacher participants were selected according to the criteria that they were:

- willing to take a role in implementing the intervention strategies suggested in the research project to support the student participants; and

- having received consent from the school's Head Teacher.

I approached two primary schools' SENCos in April 2017 to explain the aims of the research project. One SENCo showed initial interest to participate. In the new academic year, after the SENCo had discussed with the school's Head Teacher and a Year Five class teacher, a visit was arranged for me to observe that Year Five class. No specific students were observed nor mentioned in that process. Based on the class observation, I agreed that potential student participants might be found in that class. The Class Teacher then identified potential student participants and confirmed with them verbally that they would like to participate in the research project. Information sheets and consent forms (Appendix 2) were sent to the potential teacher participants, student participants and their parents. The information sheets outlined the basic information of the research project including the purpose of the study and the things that would happen to the students/teachers if they took part.

3.3.b Participants Recruited

Four students of the same Year Five class were recruited as the student participants. All of them were nine years old during the research period. Student participants W, X and Z are boys and student participant Y is a girl. The Class Teacher and the school's SENCo were recruited as the two teacher participants.

3.3.c Peer Supporters

After the consent forms of all student participants had been returned, the Class Teacher approached suitable students to act as the peer supporters. Information sheets and consent forms (Appendix 3) were sent to the potential peer supporters and their parents. Four students returned the consent forms. All were girls. They were all sitting at the same table with the corresponding student participant before the research project started. When the project started, they were sitting or moved to sit next to the corresponding student participant.

Since these four peer supporters were not the main foci of this research, they were not classified as the participants of the research.

3.4 Implementation of the Intervention Strategies

3.4.a Peer Support

In order for this intervention strategy to work smoothly and reduce any possible negative affect created during the process, some preparatory work was carried out before the strategy was implemented.

I designed a Peer Support Session and led the session in which the student participants attended with their peer supporters. The aims were to motivate the children to use this strategy to improve the student participants' attention, and to guide the children how to do this in a positive way. Each pair of children was guided to discuss and to decide what type of friendly reminder they would like to use. The session lasted for 25-30 minutes. The activities of the session are outlined in Appendix 4. Two identical sessions were arranged so that in each session only two pairs of students were involved and greater participation of the students could be allowed. Each of the teacher participants attended one session to understand the implementation process and to provide support during the process. The SENCo stayed in the whole session; the Class Teacher left about 10 minutes before the session ended due to some other duty.

All the four pairs of children chose to use a mixture of picture and written forms of reminders. Each pair made their own cards that served as the visual tools in giving friendly reminders (Appendix 5). After the Peer Support Sessions, the strategy Peer Support was implemented for nine days. On the fourth day, I met with the four peer supporters for a short discussion to understand if they had any problems with their roles and asked them if they wanted to have their cards laminated as I noticed that the cards had started to wear out. The peer supporters did not report any problems and they welcome their cards being laminated.

3.4.b Whole Class Strategies

Before Whole Class Strategies were implemented, I designed and led two Professional Development Sessions for the teacher participants to attend. In the sessions, psychological concepts on attention and possible intervention strategies were explained and the choice of specific strategy(ies) to be used in the intervention phase was decided. The first session lasted for about an hour and the second session lasted for 45-50 minutes. The activity outline and the PowerPoint slides used in the sessions are shown in Appendices 6 and 1 respectively.

The Class Teacher, who was the key person in implementing Whole Class Strategies, attended both sessions. In the second session, the Class Teacher and I jointly decided to use sign language to help increase students' engagement when talking or using a question and answer method to teach. The sign language was of two types. One way was 'Teacher Using Sign Language' where the teacher used cueing signals such as clapping hands to remind students to bring their attention back to the teacher, especially when the students were expected to shift their attention from other activities to the teacher. The second was 'Students Using Sign Language' where the teacher asked all students to use sign language such as thumbs up and down to indicate their responses to the teacher. For example, students were asked to show their thumbs up if they understood the learning tasks and thumbs down if they did not. As mentioned in Section 2.4.b, the Class Teacher was given the final say in choosing the specific strategies in the intervention period. I knew at the interview that the Class Teacher had used one more form of Whole Class Strategies which was breaking down the learning tasks into

smaller parts so that each time he talked he kept it brief. In total, three different forms of Whole Class Strategies were used and their impacts on the student participants' attention behaviour over the intervention period were studied collectively. The Whole Class Strategies were implemented for six days. Since the strategies were used with the whole class, the Class Teacher did not inform the student participants explicitly that he was using those strategies to support with their attention.

The SENCo was not able to attend the Professional Development Sessions due to some unexpected work in the school. To makeup for this, a copy of the PowerPoint slides used in the sessions was provided for her and I explained briefly the various potential forms of Whole Class Strategies.

3.5   Collection of Quantitative Data

The quantitative data were used to investigate the effectiveness of each type of intervention on improving students' attention in class. The student participants' performance in attention was operationalised as the time-on-task rate in the lesson. Most of the quantitative data were collected using systematic observation. Some quantitative data were collected using interviews with student participants. The details are explained further below.

3.5.a   Method of Data Collection

3.5.a.i   Phases of Intervention

There were different phases in collecting data in the single case experimental study. A withdrawal design, A-B-A, was used for each intervention strategy, where 'A' represented the baseline phase and 'B'

represented the intervention phase. After the intervention had been implemented for a period of time, it was removed at the second baseline phase. Each student participant's time-on-task rates in different phases were compared to understand the effectiveness of the intervention strategy. The A-B-A design was adopted instead of the A-B design. That was because if the student participants' attention behaviour changed in the intervention phase and then changed again when the intervention was withdrawn, it might provide stronger evidence to show that the performance outcome was affected by the intervention (Barlow & Hersen, 1984). The A-B-A-B design was not used, mainly because it required a longer period of time for data collection. The process might need to be discontinued during the school's long holidays and spread over different school terms. This was considered to be undesirable.

A cardinal rule of single case experimental design is to change just one variable at a time when moving from one phase to the next phase (Barlow & Hersen, 1984). Since two types of intervention Peer Support and Whole Class Strategies were investigated in this study, they were implemented one by one (as explained before, different forms of Whole Class Strategies were studied collectively in the same intervention phase and were considered as a single type of intervention under the umbrella term 'Whole Class Strategies'). The A-B-A-C-A design was adopted in which 'B' and 'C' represented the phases in which Peer Support and Whole Class Strategies were implemented respectively. There were five phases in total.

This study did not aim at investigating the combination effect or interaction effect of the above two types of intervention strategy. Therefore,

other designs such as A-B-A-BC-A design or A-BC-B-BC-A design were not used, where 'BC' represented the phase in which both types intervention strategy were implemented simultaneously.

3.5.a.ii   Systematic Observation

Systematic observation was used to obtain data on the student participants' time-on-task rates. According to Bakeman and Gottman (1997), a major characteristic of systematic observation is the use of a pre-defined coding scheme that serves as the lens with which the researcher chooses to view the world. A pre-defined coding scheme was designed in the study to classify student participants' behaviour into three categories: on-task, off-task, and undetermined. Such coding schemes have been used in many other systematic observation studies to measure students' attention performance in class (Stahr, Cushing, Lane, & Fox, 2006).

A student's behaviour was regarded as 'on-task' if he/she was doing the task expected by the teacher. His/her behaviour was recorded as 'off-task' if he/she was doing things that were not wanted by the teacher. For example, when the teacher was talking to the class and expecting all students to listen to him, a student who was chatting with his/her peer or concentrating on reading a book was regarded as off-task. The behaviour codes were defined in such a way because students' attention performance in class was not just referred to performance in sustained attention but also selective attention. Problems with selecting an appropriate stimulus to attend to would affect students' learning progress and thus were also of concern in the study. A student's behaviour was regarded as 'undetermined' when it was

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not clear whether he/she was on-task or off-task, for example, when the view of the student from the observer was obstructed.

When a teacher or teaching assistant was providing individual support to a student, the judgement of that student's behaviour depended on the context. If the student actively approached the teacher or teaching assistant for help and was engaging in the tasks on a one-to-one or small group basis, his/her behaviour was recorded as 'on-task'. It was because the student had assumed the initiative to learn and it was obvious that he/she was maintaining attention. In the cases when the teacher or teaching assistant came to provide individual support or monitoring to the student, not at the student's request, the student's behaviour was recorded as: 'off-task' if he/she was not performing the expected task; 'undetermined' if he/she was performing the expected task. The student's behaviour was recorded as 'undetermined' because the study aimed at understanding the effectiveness of the intervention strategies in a mainstream classroom setting rather than under a one-to-one or small group learning situation. That implies if the teacher or teaching assistant had not come to provide individual support or monitoring to the student, it was not clear whether he/she would perform the expected task.

Some researchers only measure on-task, off-task and undetermined behaviour during instructional time. Procedural time such as lining up is not considered (Karweit & Slavin, 1982). However, certain procedural activities, such as getting learning materials, are contributing to the learning activities. Students' paying or not paying attention in those activities may also affect their learning progress. Therefore, in this study, students' attention

performance during learning-related procedural time were also measured. In the time when the classroom activity was unrelated with the students' learning of the lesson such as another teacher coming to the classroom and talking with the Class Teacher, the students' behaviour was recorded as undetermined.

A recording guideline that provided examples of on-task, off-task and undetermined behaviour was prepared (Appendix 7).

An interval coding method was used in the systemic observation. The observed behaviour was recorded in every 1-minute time interval using an observation schedule (Appendix 7). The student participants were observed for 40 minutes on each observation day, starting at a time between 9:00 a.m. to 9:05 a.m. All student participants were having their first lesson at that time, which was timetabled as a mathematics lesson from Monday to Thursday and was delivered by the Class Teacher.

The record of each student participants' attention behaviour in each 1-minute interval was made based on his/her behaviour at the moment of time when he/she was observed, rather than on the most frequently occurred behaviour over that one minute. In the beginning of each 1-minute interval, the first student participant's attention behaviour was recorded; and then the second student participant's attention behaviour was recorded immediately; and so on. If it was not very clear whether a student participant was on-task or off-task, it might take a few more seconds to observe him/her before a decision of the behaviour record was made. If it was still unclear after 10-15 seconds, the behaviour was classified as 'undetermined'.

It was decided to observe 40 minutes on each observation day because some studies show that students' time-on-task behaviour might not be distributed evenly across a lesson. Some classes' on-task time was significantly higher during the first 10 minutes of instruction while the on-task time in other classes started off with lower rates and then increased after having warmed up to instruction (Karweit & Slavin, 1982). Moreover, students' on-task behaviour might be affected by the nature of the tasks or classroom activities. If the length of observation period was too short, the variety of classroom activities might be limited to just one or two types. In such case, the student's attention performance observed might just reflect their behaviour towards those specific classroom activities during the observation time. A 40-minute observation length might cover a greater variety of classroom activities and the data obtained would be more likely to represent the student participants' average attention performance in the class. So, on each observation day, 40 data points were collected for each student participant.

To reduce the changes in other factors across the observation days, all lessons observed were mathematics lessons taught by the Class Teacher and started at the above-mentioned time. When the first lesson on Monday to Thursday was re-arranged to another subject, taught by another teacher or used to carry out mathematics test, the observation was cancelled and no data obtained on that day.

3.5.a.iii   Days Observed in Each Phase

Many researchers suggest that the amount of data collected in baseline or intervention phases should be large enough to show clearly

stability in the measurement of the phase (Johnson, 1972; Barlow & Hersen, 1984). However, Barlow and Hersen (1973) point out that three separate observation points would appear to be the minimum requirement in establishing a trend in the baseline data. They suggest that a minimum of three separate observation points, and often more, would be required to determine whether the intervention is effective. They argued that there are advantages of having a relatively equal number of observations in each phase.

In this study, three days were observed in Phase I (baseline) and Phase III (baseline, Peer Support withdrawn) respectively. Five days were observed in Phase II (implementing Peer Support) and Four days in Phase IV (implementing Whole Class Strategies). No observations were successfully arranged in Phase V (baseline, Whole Class Strategies withdrawn). This was because there had been many unexpected circumstances leading to cancellation of the observations. Time had not been enough for data collection in Phase V to be finished before the school term ended.

3.5.a.iv   Number of Observers

This study involved only one observer, myself as the researcher. It was arranged in such a way due to three major reasons. Firstly, it was difficult to recruit suitable observers. The observation days and time were not confirmed until the participants had been recruited. The actual duration of the whole data collection process was also uncertain. It might need a longer period of time if some of the arranged observations were cancelled or if the data within a phase fluctuated greatly. It was quite difficult to recruit observers

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who had already obtained the Disclosure and Barring Service checks and were able to offer their service in a very flexible time schedule. In addition, if more than one observer was involved, different observers might interpret the coding scheme in different ways. Sufficient training had to be provided to all observers to ensure they would adopt the same criteria in making the observation records. Moreover, more observers involved in the study meant more communication costs would be incurred and greater uncertainty would be faced. For example, if any of the other observers did not want to work for this research project anymore, I would need to find another observer to cover or to recruit a new one immediately. Therefore, after thorough considerations, I decided to spare more time to complete the systematic observations by myself. I believed that this arrangement would ensure a higher consistency in taking observation records in the study under a tight time constraint. However, the lack of data to check the inter-observer reliability could be a limitation of the study (details explained in Chapter 6).

3.5.a.v   Data on the Types of Classroom Activity

As explained in Section 2.4.b, there are various forms of Whole Class Strategies. For example, changing the learning tasks such as providing students with more visual cues and hands-on tasks or changing the teaching and learning approach such as adopting cooperative learning are forms of Whole Class Strategies and are believed to have effects in changing students' attention behaviour. If the Class Teacher in the study unintentionally used more or less of the above learning tasks or teaching and learning approach across Phases I and III when Peer Support was tested, then the student participants' attention performance might be affected and

confounding effects might occur. Therefore, more data were collected to check if such confounding factors existed in the analysis of the effectiveness of Peer Support.

Data on the types of classroom activity were collected which were classified into eight categories: (a) teacher talking to the whole class (TALK); (b) teacher using a question and answer method of teaching to the whole class (Q&A); (c) students working individually without concrete resource support (INDI); (d) students working in pairs/groups without concrete resource support (GP); (e) students working individually with concrete resource support (R+INDI); (f) students working in pairs/groups with concrete resource support (R+GP); (g) procedural activities; (h) others. The above categorisation was chosen because it represented many typical classroom activities. It might also provide useful information on whether the student participants' on-task/off-task behaviour was affected by learning tasks that were hands-on and involved concrete visual cues, and by teaching and learning approach that involved pair/group work. Details are explained in Section 3.5.c.

The type of classroom activity was recorded alongside the student participants' attention behaviour in each time interval on each observation day. Since all student participants' attention behaviour was recorded mostly within the first 15-20 seconds of each 1-minute interval, they experienced roughly the same classroom activity in each interval. Therefore, only one entry of the type of classroom activity was made alongside the four entries of attention behaviour, one from each student participants, in every recording interval as shown in the Observation Schedule in Appendix 7.

3.5.a.vi   Quantitative Data from Interviews

Interviews were conducted mainly to collect qualitative data. However, some closed questions asked in the interviews with student participants provided data for quantitative analysis. The student participants were asked whether they thought the intervention strategies were helpful or not in supporting their attention in class. Five options on a Likert scale were offered for them to choose from: 'not at all helpful', 'slightly helpful', 'moderately helpful' (explained "moderately means half and half"), 'very helpful' and 'extremely helpful'. They were then asked to pick one or two types of classroom activity in which they concentrated better and the type(s) in which they found most difficult to concentrate.

3.5.b   Materials

The materials used in this study included: observation schedules that were used to record the student participants' performance in attention during the observation time, materials for the Peer Support Sessions, and materials for Professional Development Sessions (Appendices 1, 4, 6 and 7).

3.5.c   Method of Data Analysis

3.5.c.i   Patterns of Attention Behaviour

Data on the student participants' behaviour and the corresponding type of classroom activity were entered using software Excel. On each observation day, 40 data points on each student participant's attention behaviour were obtained. The time-on-task rate of each student participant on each observation day was computed by dividing the total amount of on-task behaviour by the sum of on-task and off-task behaviour on that day. The

time-on-task rate was presented in percentage. Each student participant's time-on-task rates in different phases were then analysed and compared to understand the impacts of the two types of intervention.

Researchers suggest the inclusion of effect size calculations, not just visual analysis, to support their conclusions for intervention effectiveness (APA, 2010). Some researchers (Olive & Smith, 2005; Olive & Franco, 2008) contend that a regression approach for calculating effect size in single case data should be avoided. Among the non-regression approaches, they suggest that the use of Standard Mean Difference utilising all intervention data points (SMD_{all}) is the best choice. They believe that the Standard Mean Difference calculation gives an actual *d* score that would be more interpretable by readers. However, many other single case researchers prefer using Percentage of Non-Overlapping Data (PND). Scruggs and Mastropieri (2001) argue that PND is preferred to SMD_{all} because if the effect size is greater than 2 standard deviations then the treatment data point would be on average higher than the 97.7^{th} percentile of the baseline data points; it is meaningless to interpret the distinctions between an effect size of 2 standard deviations and an effect size of 3 (or even 13) standard deviations.

In this study, both PND and SMD_{all} were computed to find the effect sizes of the two types of intervention. The effect size of using each type of intervention with each student participant was found. The calculations are illustrated in Appendix 8.

3.5.c.ii   Types of Classroom Activity and On-task/Off-task Behaviour

Analysis was carried out to check if confounding factors existed when Peer Support was tested. First of all, data on the type of classroom activity collected alongside each student participant's on-task/off-task behaviour was used to check if the two variables had an association statistically. If the type of classroom activity was significantly associated with the on-task/off-task behaviour, then having more or less of certain types of classroom activity across Phases I and III might have affected the student participants' attention behaviour. Therefore, the second step was to check if the pattern of classroom activity had fluctuated greatly across Phases I and III.

Data on the type of classroom activity and the attention behaviour (on-task/off-task/undetermined) of each student participant in Phase I (baseline phase) were processed to test for association using software Statistical Package for the Social Sciences (SPSS). Screenshots of the analysis process are shown in Appendix 9. As the data were categorical, non-parametric tests Chi-squared analysis were carried out, using the type of classroom activity as the independent variable and student participants' attention behaviour as the dependent variable. To conduct Chi-square tests, it is imperative that each item contributes to only one cell of the contingency table (Field, 2009). In the study, the observed attention behaviour of each student participant in each observation interval was paired with the observed type of classroom activity in that observation interval. For each student participant, there were in total 120 pairs of data over the three observation days in Phase I and no data items were used repeatedly.

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The percentage of each type of classroom activity on each observation day was obtained by dividing the amount of that type of activity by 40 (the total entries on a day). The patterns of classroom activity across the observation days were studied. The patterns in Phases I, II and III were analysed to check if they changed greatly across those phases. The results were used together with the Chi-square test results to check if confounding effects occurred in testing the effectiveness of Peer Support.

Moreover, if the Chi-square tests showed that the type of classroom activity was significantly associated with each student participant's on-task/off-task behaviour, it implies that teachers can use more of certain learning tasks (such as tasks with visual cues) or teaching/learning approach (such as pair/group work) to improve the students' attention behaviour. Since changing the learning tasks and changing the teaching/learning approach are forms of Whole Class Strategies, that means the Chi-square test results might provide additional information to understand the effectiveness of Whole Class Strategies, although these strategies were not used as interventions in the single case study.

The processes of analysing observation data to find the effectiveness of Peer Support and Whole Class Strategies are illustrated in Figures 3 and 4 respectively. More details such as analysis regarding the values of effect size are explained in Chapter 4 'Results'.

Figure 3. Analysing Observation Data to Find the Effectiveness of Peer Support
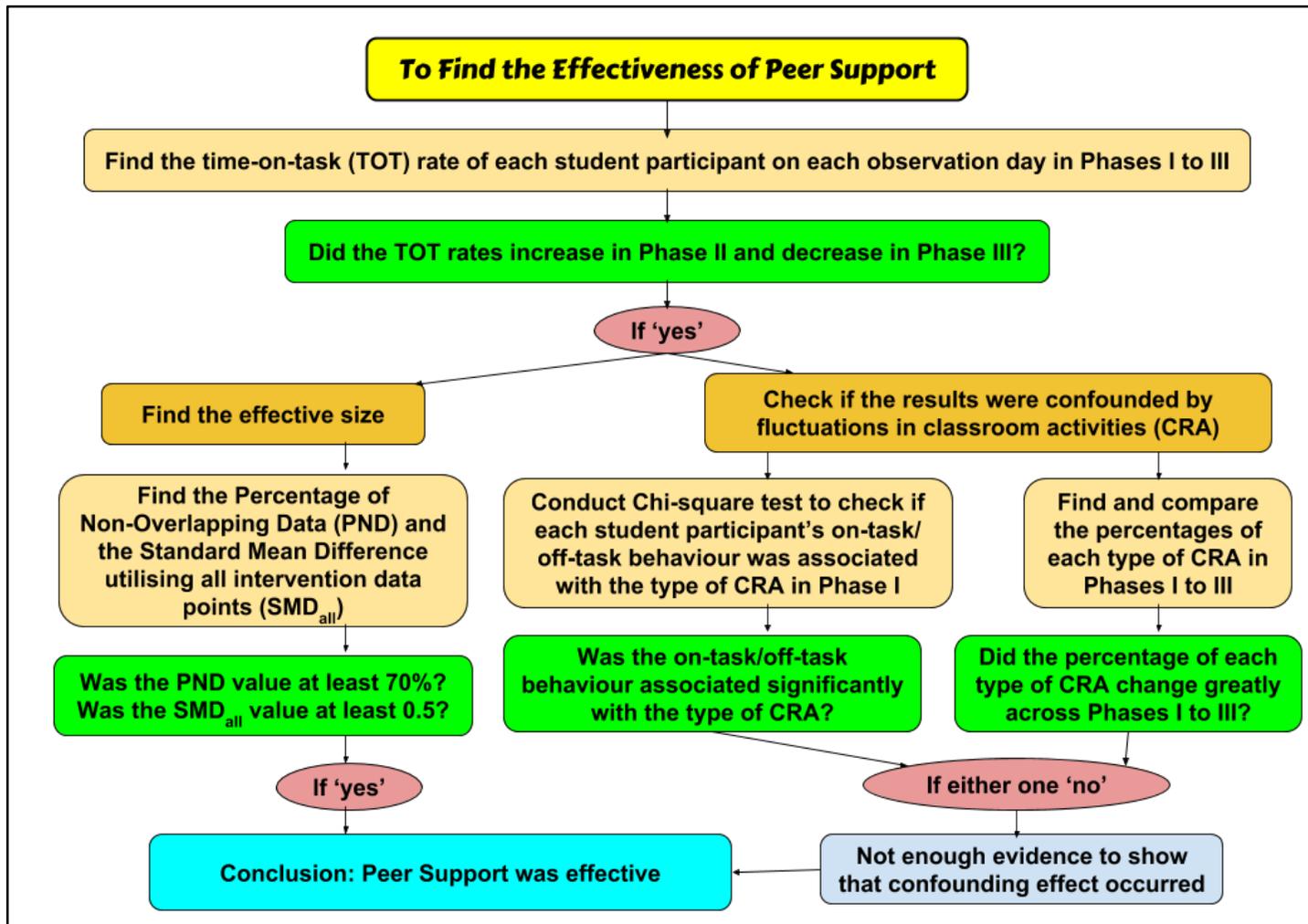
Figure 4. Analysing Observation Data to Find the Effectiveness of Whole Class Strategies
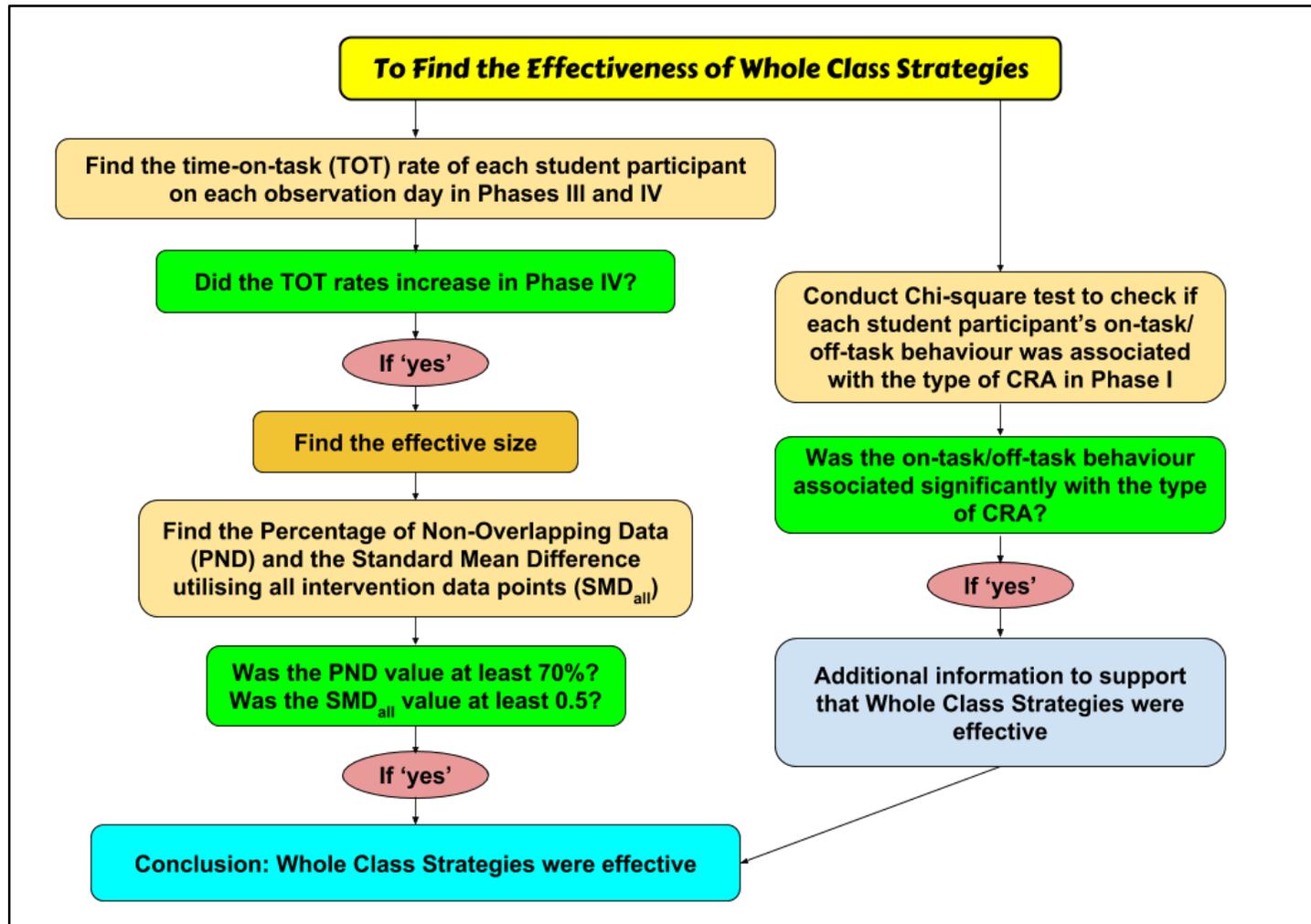
Data obtained from interviews on each student participant's rating using Likert scales on the effectiveness of each type of intervention strategy was computed to get the mean, median and mode. Data on each student participant's choices of the type(s) of classroom activity where he/she concentrated better/worse were compiled to see if there was any pattern across the four student participants.

3.6   Collection of Qualitative Data

The qualitative data of this study were mainly used to understand the student participants' experience in receiving the two types of intervention and the teacher participants' experience in implementing the interventions. All qualitative data were collected using interviews.

3.6.a   Method of Data Collection

All student participants and teacher participants were interviewed individually by me after the intervention strategies had been implemented and withdrawn. Each student participant attended two interviews, one carried out at the end of Phase III (when Peer Support was withdrawn) and the other one at the end of Phase V (when Whole Class Strategies was withdrawn). Each teacher participant (Class Teacher and SENCo) attended one interview at the end of Phase V.

The interviews with student participants were split into two parts because the whole data collection process lasted for nearly eight weeks. I thought if only one interview was held at the end of the Phase V, young

children might forget some of the experience they had had in Phase II when they were using the strategy Peer Support. Therefore, an interview that focused on Peer Support was held at the end of Phase III and another interview that focused on Whole Class Strategies was held at the end of Phase V. The purpose of doing teacher interviews was not just to understand their experience in implementing the two discrete types of intervention, but also their overall experiences and perspectives in supporting students who struggle with attention. Not splitting the teacher interviews into two parts allowed their viewpoints to be explored more smoothly and efficiently.

All the interviews were conducted face-to-face by the researcher. Such a setting allowed for both verbal and non-verbal communication. It helped me get a better understanding of the participants and to motivate them to express their views (De Leeuw, 2008). Some researchers argue that interviewees may refrain from answering sensitive questions when they meet the interviewers face-to-face (De Leeuw, 2008). Since this research study did not involve very sensitive issues, such a possible drawback of face-to-face interviewing was not experienced.

Individual interviews rather than group interviews were used in this research study because they gave each participant more space to express his/her viewpoints and experiences thoroughly. Also, there was no need to deal with the potential problems arising from group dynamics such as conversations being dominated by one or a few participants, emergence of side conversations, and having certain participants always staying silent (Liljestrom, 2010).

The interviews carried out were semi-structured. Four interview outlines were prepared to serve as the guides for: (a) the interviews with student participants on Peer Support; (b) the interviews with student participants on Whole Class Strategies; (c) the interview with the Class Teacher; and (d) the interview with the SENCo (Appendix 10). The interview outlines listed the major areas where I planned to obtain data. Some interview questions were drafted beforehand. More detailed questions were generated during the interview based on the participants' answers. Open questions were mostly asked in the interviews because answers to open questions helped me obtain richer and more in-depth qualitative data from the participants. A few closed questions were asked in interviews with student participants to provide quantitative data, as explained in Section 3.5.a.vi.

In the interviews with student participants, long and complex questions were avoided since many researchers emphasise that use of age-appropriate questions are important when interviewing children (Kvale & Brinkmann, 2009). The issue of power imbalance between interviewee (who is a child) and interviewer (who is an adult) becomes more acute in interviews with children (Eder & Fingerson, 2002), therefore, I tried to avoid being associated with a figure that represents power and authority such as asking the child to stop doing certain things or suggesting what he/she should do. I tried to carry out the interviews in a friendly and relaxed way. For example, in the first interview with them, I told them I was not very familiar with using the voice recorders (that was a fact) and I engaged them in testing the voice recorders before the interviews were actually recorded. I hoped that that

would help reduce the children's anxiety when their voice was being recorded and reduce the possibility of perceiving me as an authority figure.

The responses of all the participants were recorded simultaneously by two audio recorders during the interviews. The audio records were then transcribed into written words before they were analysed.

3.6.b   Materials

The materials used in collecting qualitative data included four semi-structured interview outlines (Appendix 10) and two audio recorders.

3.6.c   Method of Data Analysis

3.6.c.i   Using Thematic Analysis

Thematic analysis was used to encode and analyse the qualitative data. Boyatzis (1998) suggests that thematic analysis can be treated as a way of systematically observing a person, an organization, a situation, or a culture. He describes the role of thematic analysis as a translator. The qualitative information is translated into codes and themes, and then researchers who have acquired such analytical skills can use them to communicate with each other.

In the process of conducting thematic analysis, codes and themes were produced from the qualitative data. The codes produced served as the labels in which symbolic meaning was assigned to the descriptive or inferential information while themes were those that captured something that I believed to be important about the data in relation to the research questions of the study (Braun & Clark, 2006).

Many researchers suggest that two approaches may be involved in using thematic analysis to produce explanations from the qualitative information. The first one is an inductive approach in which the analysis is data-driven and bottom up. Themes are identified based on the data themselves, without any attempt to fit the data into a pre-specified coding frame or the researcher's analytic preconceptions. The second one is a deductive approach in which the analysis is theory-driven. This form of analysis is driven by the researcher's theoretical or analytic interest in the area. It tends to produce more of a detailed analysis of some aspect of the data but less a rich description of the overall data (Braun and Clark, 2006).

In this research study, I used a data-driven approach in conducting thematic analysis. It was because although interventions Peer Support and Whole Class Strategies were introduced based on theoretical ground, the implementation of them were quite original and uniquely designed. There were no other studies investigating the same strategies in the same way, and there were also not many research studies that used similar strategies focused on exploring the experiences of the students and teachers. I believed that using an inductive approach would allow for codes and themes to emerge directly from the data and would help me generate new insights in understanding the strategies in supporting students who are experiencing difficulty with their attention.

The transcripts were processed using software NVivo. In vivo coding was widely used at the initial stage of coding. Many initial codes came directly from the words or terms used by the student and teacher participants. I widely used this way of coding because I had limited experience in conducting

qualitative research and in vivo coding is suitable for beginning qualitative researchers (Miles, Huberman & Saldaña, 2013). It helped me to pay more attention to the messages conveyed by the participants in their own language without putting too much of my judgement at the initial stage of the analysis.

<u>3.6.c.ii   Process of Using Thematic Analysis</u>

There are different ways to conduct thematic analysis. Attride-Stirling (2001) proposes a step-to-step guide that involves three different stages as shown in Table 1.

Table 1.   Step-to-step Guide Proposed by Attride-Stirling (2001)

Stage	Step
Reduction or Breakdown of Text	Code Material
	Identify Themes
	Construct Thematic Networks
Exploration of Text	Describe and Explore Thematic Networks
	Summarize Thematic Networks
Integration of Exploration	Interpret Patterns

Braun and Clark (2006) suggest six phases in doing the analysis: familiarizing with your data; generating initial codes; searching for themes; reviewing themes; defining and naming themes; and producing the report.

In this study, I incorporated Attride-Stirling's (2001) and Braun and Clark's (2006) guidelines to get a 'three-stage-six-step' analytical process summarised in Table 2.

Table 2.   Process of Using Thematic Analysis in this Research

Stage	Step
Developing Codes	Familiarising Myself with the Data
	Generating Initial Codes
Developing Themes	Searching for Themes
	Reviewing Themes
Integration and Interpretation	Constructing Thematic Networks

Interpreting Patterns

As Braun and Clark (2006) have emphasised, thematic analysis is not a linear process of simply moving from one phase to the next, but rather a recursive process. Therefore, I moved back and forth throughout the analysis process before meaningful codes and themes had emerged to answer my research questions. The process of conducting thematic analysis is shown in Appendix 11.

3.7   Validity and Reliability

3.7.a   Quantitative Data

Observations have been considered inherently valid by many researchers since the data collected are based on direct sampling of behaviour and they require minimal inferences on the observers' part (Goldfried & Linehan, in Barlow & Hersen, 1973). Therefore, the validity of the quantitative data collected through systematic observation in the study could be ensured. According to the checking pathways on validity suggested by Simpson and Tuson (1995), this study had high face validity. Firstly, the data came from a normal classroom and the source is highly credible. Secondly, the observation schedule that measures on-task and off-task behaviour to represent attention performance has been widely used in research (Stahr et al., 2006). Thirdly, the choice of the research design and data collection methods had been discussed at the University of Sheffield with my research supervisor, two other course tutors of the Doctor of Educational and Child Psychology programme and my course-mates. The categorisation of classroom activities had received agreement from my

research supervisor. I had also discussed the research design with my fieldwork supervisors who are Senior Educational Psychologists. The data collection is likely to be valid.

Concern with observer reliability, especially inter-observer reliability, is a major characteristic of systematic observation (Bakeman & Gottman, 1997). It is because when a study involves more than one observer, different observers may interpret the coding scheme differently. To ensure consistency across observers, researchers suggest finding the inter-observer agreement coefficient which is obtained by comparing the records taken by different observers. If the coefficient is lower than 80%, the reliability of the study would be treated as unacceptable in a professional research study (Simpson & Tuson, 1995).

In the study, there was only one observer. Inconsistency due to different interpretations of the coding scheme across observers was avoided. However, many researchers recommend involving more than one well-trained observer in a study and reporting the inter-observer agreement coefficient. This is because this can demonstrate that the observation schedule and coding scheme can be used by different observers to arrive at the same observation results (Croll, 1986). The study did not use any inter-observer agreement coefficient to show that it has a high reliability.

Triangulation was used in the study to demonstrate reliability. The study used different sources of data (different types of participants, different student participants, data collected at different times), different methods of data collection (systematic observation and interviews) and different methods of data analysis (statistical analysis on changes in time-on-task

rates, statistical analysis on association between variables, thematic analysis) to triangulate the research findings.

Regarding intra-observer reliability, there was a clear judgement criterion on the on-task, off-task and undetermined behaviour in conducting systematic observation. A recording guideline with examples in behaviour coding under different classroom scenarios was prepared. It helped ensure consistency in coding behaviour and reliability of the study.

3.7.b   Qualitative Data

Validity and reliability are concepts originally adopted in quantitative research studies and are rooted in a positivist paradigm. Some researchers view reliability in qualitative studies as 'problematic' (King & Horrocks, 2010, pp. 160), especially when they are concerned with the external reliability of the research which refers to the replicability of the research to obtain the same or similar results. The interviews in this study could be replicated using the interview outlines. However, the exact wordings, tone, gesture and other non-verbal communication skills used in the interviews would not be the same if this research was repeated. In the data analysing process, the researcher was the only person who identified the codes and themes, and to interpret the patterns of the data. The technique of having two coders working on the same interviews was not used in this study. There was no information on the intersubjective agreement to check for the reliability (Kvale & Brinkmann, 2009). But this was acknowledged and steps were taken to ensure a good quality of the qualitative analysis.

Many qualitative researchers prefer using the term 'quality of the research' instead of the terms validity and reliability. Most qualitative researchers agree that it is not possible to have a standard criteria and procedure to judge the quality of a piece of research (Mertens, 2015). Different researchers have proposed different criteria to assess the quality of qualitative research. For example, Tracy (2010) suggests eight criteria of good qualitative research which are: worthy topic; rich rigor; sincerity; credibility; resonance; significant contribution; ethics; meaningful coherence. Yardley (2000) proposes another framework that includes four major characteristics: sensitivity to context; commitment and rigour; transparency and coherence; impact and importance.

Using Yardley's (2000) framework, this study is sensitive to context as it is based on theoretical constructs around attention and attention difficulties, including participants' perspectives and concerned ethical issues. Regarding commitment, I had a prolonged engagement with the topic and was immersed in the data during the analytic process. The analysis was quite rigorous as much rich data was produced around the student and teacher participants' experience and views. Data collection was very thorough and triangulation of data analysis was employed to achieve a multi-layered understanding of the research topic. The study is very transparent. All the materials used in the study, including the planned activities outline of the Peer Support Sessions and the Professional Development Sessions, copies of the PowerPoint slides used in the Professional Development Sessions, the interview outlines, screenshots of the analysis process using NVivo and samples of initial coding and final stage coding are made available as the

appendices of the study. The language used in data presentation was coherent with the theories and the epistemological stance of conducting qualitative research. The study enriches the understanding of the existing literature on attention and attention difficulties. It also has practical value for teachers, educational psychologists and other professionals in supporting struggling students.

3.8 Ethical Considerations

The single case study adopted a withdrawal design for the interventions. Some researchers argue that the removal of an intervention will lead to an irreversible deterioration of the participants (Barlow & Hersen, 1984). However, other researchers contend that there is no evidence found in the experimental literature supporting this argument (Leitenberg, 1973). Nevertheless, to ensure appropriate protection and well-being of the student participants, before the research project had started I had sought support from the teacher participants to have an understanding that the intervention strategies would be provided again to the student participants after the whole process of data collection had been completed if those strategies were found to be effective and welcomed by the students. Moreover, the reasons for removing the strategies during the research process and the possibility of re-introducing the strategies after the research process was explained in the information sheets sent to the teacher participants and parents of the student participants.

The peer supporters might also feel uncomfortable when they were required to stop supporting their peers (the student participants) when the

research project entered into Phase III. Therefore, the parents of the peer supporters were informed in the information sheets that if their children would like to support again their peers after the end of the study, it might be possible to do that in liaison with the teacher and the children receiving support, on condition that no negative impacts had been found in using the strategy.

The study involved an aim of supporting students who struggled with attention by their peers. This might create negative labels such as 'inattentive' to the student participants, or make the children think that the student participants who needed others' help were inferior while the peer supporters who could offer helps were superior. To avoid this kind of issues, the language used in this research project, including that used in the information sheets and in the Peer Support Sessions, was refined to help create a positive image for all children involved. For example, the sentence 'they want to improve concentration' was used instead of 'they are inattentive', and the term 'support' was used instead of 'help'. Use of the term 'attention difficulties' was avoided in the information sheets and consent forms to the student participants, peer supporters and their parents. Moreover, in the Peer Support Sessions, all the involved students were guided to share their experience in providing support to other people as well as receiving support from other people. This helped normalise the fact that some students among them were receiving support while some were providing the support in this research project.

In the process of providing peer support, the student participants might feel uncomfortable when they were reminded and the peer supporters might feel uncomfortable if the student participants did not respond positively

to their reminders. To reduce any possible negative affect created during the process, all student participants had indicated that they welcomed being supported by their peers. Also, the student participants and peer supporters were guided in the Peer Support Sessions on how to provide support and receive support in a positive way. They were encouraged to discuss and decide together the form of friendly reminders. It helped developing an ownership of using the strategy by both the student participants and the peer supporters, and reducing the possibility of using the strategy in a way that either the student participants or the peer supporters would feel uncomfortable.

Finally, the peer supporters needed to spare some of their time to support the student participants. To make sure the peer supporters' own learning in class would not be unduly interfered with, they were told that they were expected to give a friendly reminder just when their peers (the student participants) started to lose attention in the class. If the latter did not pay attention to their learning after receiving the friendly reminders, the peer supporters were not expected to keep reminding them.

The ethics application was approved by the University of Sheffield in June 2017 (Appendix 12). As there was a slight change in the research afterward, updated information sheets and consent forms (Appendices 2 and 3) were sent to the Ethics Administrator for their records.

3.9   Pilot Study

A pilot study was carried out in implementing Peer Support with a Year Four student. A Peer Support Session was held before the intervention and

an interview was arranged with the student participant after intervention. However, this pilot study did not involve any teacher as participant and Whole Class Strategies were not tried out. Experience was gained in the pilot study to help me refine the Peer Support Session and the interview. For example, in the Peer Support Session, I added an idea to use pictures to motivate the children before I talked about children supporting each other. Those pictures showed boys and girls supporting each other to learn or showed a group of children joining their hands and wearing smiling faces. I added more specific questions in planning for the interviews as I found that the child in the pilot study did not elaborate his answers and the qualitative data obtained was not rich enough.

The coding system on attention behaviour, the observation guideline and the observation schedule were used with four Year Four students in another pilot study. These four student participants were learning in the same class. They were observed over 6 days, 40 minutes each day. That study helped me to be more aware of the techniques required in taking behavioural records for multiple participants in each time interval. Having such experience, I decided to have a trial baseline observation before Phase I of the study.

There were several purposes of the trial observation. First of all, I became familiar with the faces of the four student participants and their positions in the classroom. Secondly, I found a place in the classroom where I could easily observe each of them. Thirdly, based on their positions and mine, I decided the flow of taking observation records of the four student participants in every minute interval. The student participants were then

assigned the codes 'W', 'X', 'Y' and 'Z' according to the flow of observation; these codes were used in the observation schedule. Finally, I practiced using the observation schedule and the coding system to take records with each of the four student participants in every minute interval. Apart from the above technical purposes, the trial observation of the recruited student participants' attention behaviour helped me to confirm that they were appropriate as target participants in the study by reflecting on baseline measures.

3.10 Research Timeline

The whole data collection process lasted for about eight weeks. The detailed research timeline is showed in Appendix 13.

Chapter 4.   RESULTS

4.1   Quantitative Results

4.1.a   Patterns of Attention Behaviour

There were in total 15 observation days over the four phases. Student participants W, X and Y attended school on all observation days while student participant Z was absent on Day 4 at Phase II.

4.1.a.i   Changes in Time-on-task Rates

The time-on-task rates of each student participant on each observation day over the four phases are presented in Figure 5 to Figure 8. The changes in the time-on-task rates reflected the changes in patterns of their attention behaviour across the baseline and intervention conditions.

Figure 5.   Student Participant W's Time-on-Task Rates Across All Phases
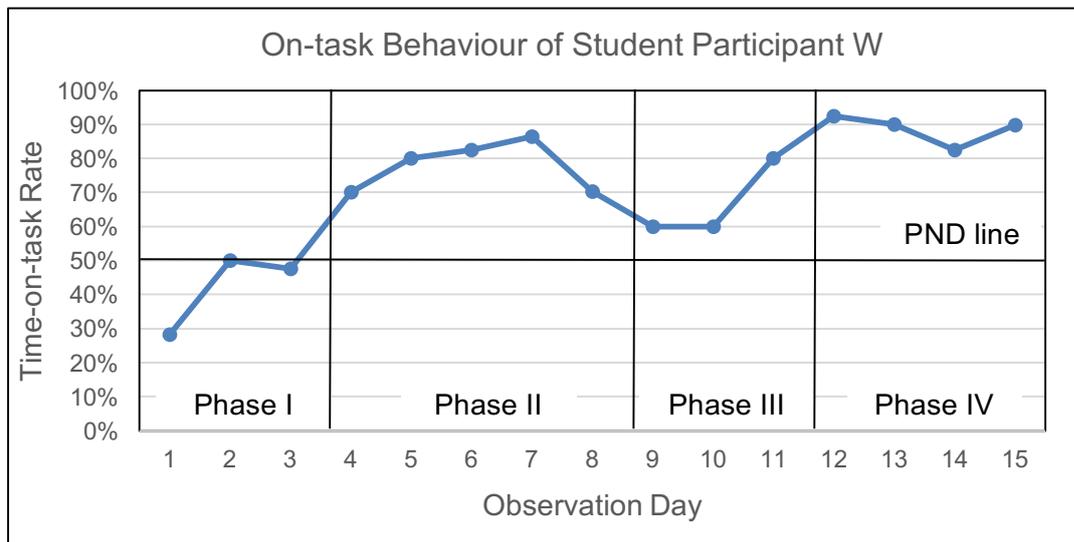
Note. Phase I: baseline phase
    Phase II: intervention phase, Peer Support implementing
    Phase III: baseline phase, Peer Support withdrawn
    Phase IV: intervention phase, Whole Class Strategies implementing
    PND: Percentage of Non-Overlapping Data

Figure 6. Student Participant X's Time-on-Task Rates Across All Phases
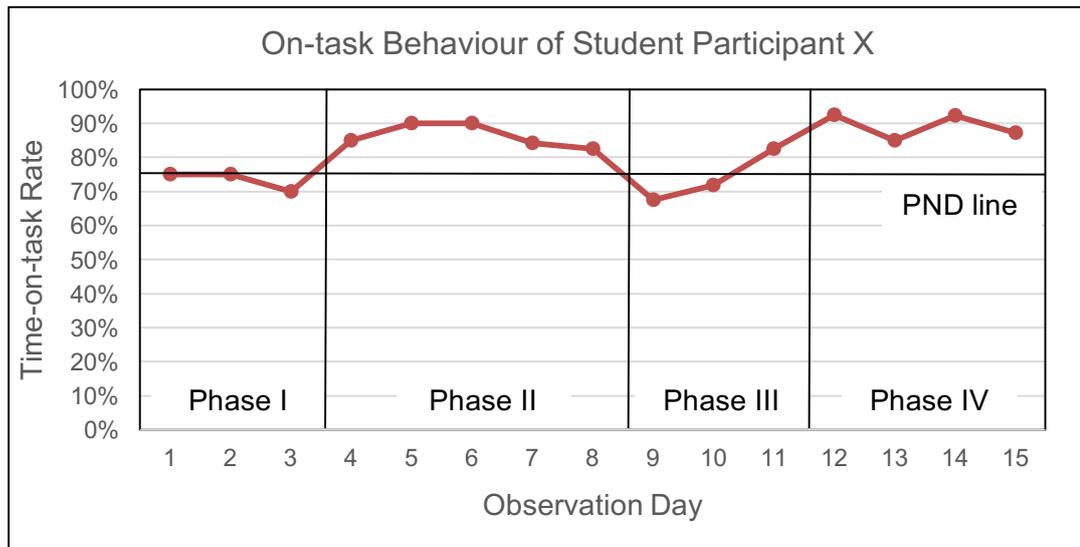
Note. Phase I: baseline phase

Phase II: intervention phase, Peer Support implementing

Phase III: baseline phase, Peer Support withdrawn

Phase IV: intervention phase, Whole Class Strategies implementing

PND: Percentage of Non-Overlapping Data

Figure 7. Student Participant Y's Time-on-Task Rates Across All Phases
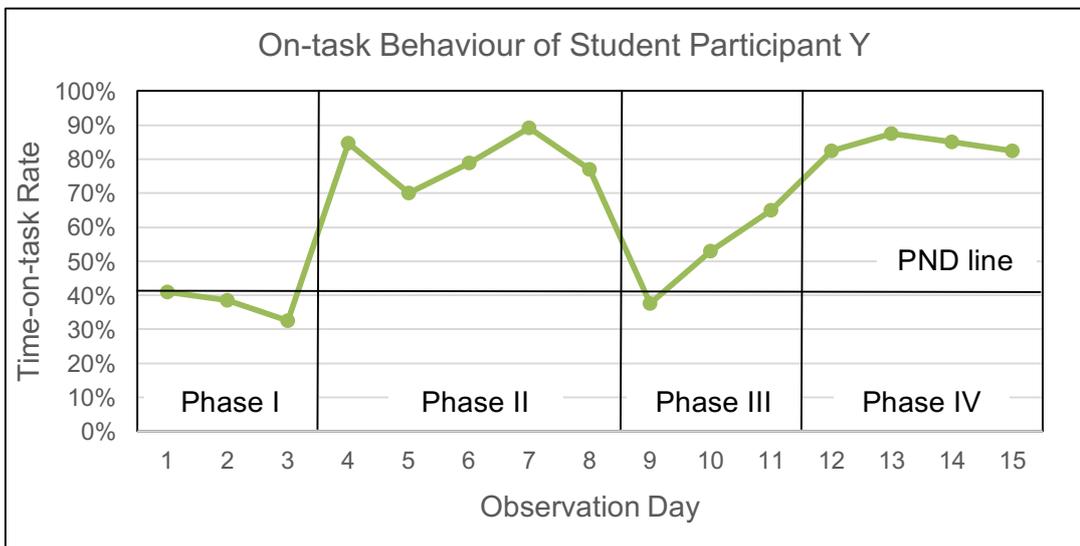
Note. Phase I: baseline phase

Phase II: intervention phase, Peer Support implementing

Phase III: baseline phase, Peer Support withdrawn

Phase IV: intervention phase, Whole Class Strategies implementing

PND: Percentage of Non-Overlapping Data

Figure 8. Student Participant Z's Time-on-Task Rates Across All Phases
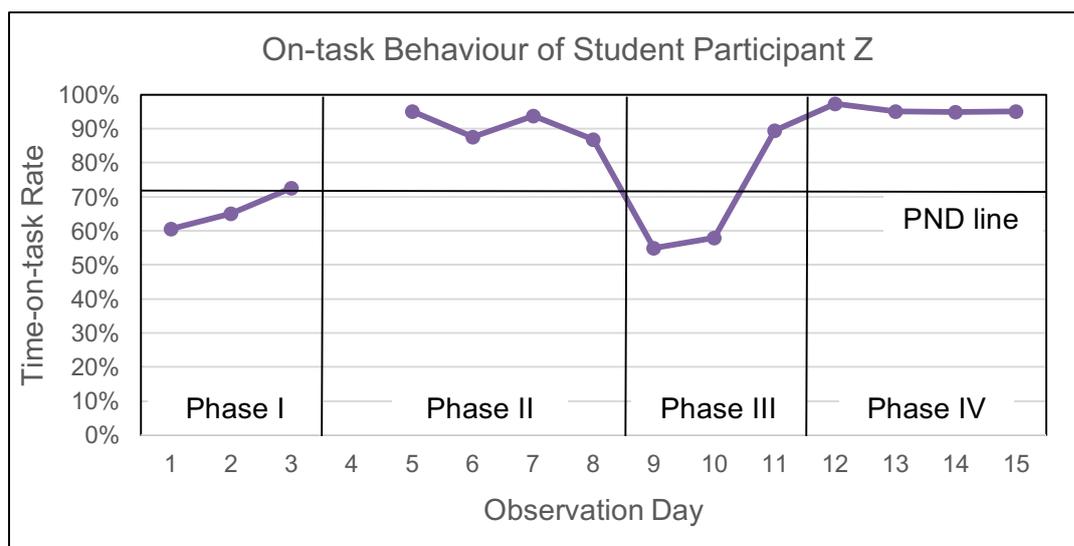
On-task Behaviour of Student Participant Z

Note. Phase I: baseline phase
Phase II: intervention phase, Peer Support implementing
Phase III: baseline phase, Peer Support withdrawn
Phase IV: intervention phase, Whole Class Strategies implementing
PND: Percentage of Non-Overlapping Data

The above graphical representations showed that all student participants had similar patterns of changes in the time-on-task rates across the four phases. Their time-on-task rates were raised during Phase II when Peer Support was used. The rates generally dropped in Phase III (except on Day 11) when Peer Support was removed, and then rose again in Phase IV when Whole Class Strategies were implemented.

Remarks recorded on the systematic observation schedule indicated a special type of classroom activity was carried out on Day 11. Details are reported in Section 4.1.c.ii.

Table 3 shows the mean values of each student participant's time-on-task rates in each of the four phases. The mean time-on-task rate of student participant W increased from 41.9% to 77.9% when Peer Support was

implemented and dropped to 66.7% when the intervention was withdrawn. It rose to 88.7% when Whole Class Strategies were implemented.

Table 3. Mean Time-on-task Rate of Each Student Participant in Phases I to IV

Student Participant	Phase I	Phase II	Phase III	Phase IV
W	41.9%	77.9%	66.7%	88.7%
X	73.3%	86.3%	73.9%	89.2%
Y	37.3%	79.9%	51.8%	84.4%
Z	66.0%	90.8%	67.5%	95.6%

Note. Time-on-task rate of a student participant on an observation day = The total amount of on-task behaviour of that student participant on that day ÷ The sum of on-task and off-task behaviour of that student participant on that day;

Mean time-on-task rate of a student participant in a phase = The average value of all time-on-task rates of that student participant over all observation days in that phase

A similar change pattern was found in all other student participants. Student participant X's mean time-on-task rate increased from 73.3% to 86.3% in Phase II and then dropped to 73.9% in Phase III. It rose to 89.2% in Phase IV. For Student Participant Y, the mean time-on-task rate rose from 37.3% to 79.9% in Phase II and fell to 51.8% in Phase III. It increased to 84.4% in Phase IV. Student participant Z's mean time-on-task rate increased from 66.0% to 90.8% in Phase II and dropped to 67.5% in Phase III. It rose to 95.6% in Phase IV.

The differences of the mean time-on-task rates between different phases were computed to investigate the extent of the impact of implementing or withdrawing the strategies on each student participant. The results are shown in Table 4.

Table 4. Difference of Mean Time-on-task Rates of Each Student Participant between Different Phases

Student Participant	Regarding Peer Support			Regarding Whole Class Strategies
	Difference between Phases I and II	Difference between Phases II and III	Difference between Phases I and III	Difference between Phases III and IV
W	+35.9%	-11.2%	+24.8%	+22.0%
X	+13.0%	-12.4%	+0.6%	+15.3%
Y	+42.6%	-28.1%	+14.5%	+32.6%
Z	+24.8%	-23.3%	+1.4%	+28.1%

Results indicated that when Peer Support was implemented the student participants' mean time-on-task rates increased by an amount that ranged from 13.0% to 42.6%. When Peer Support was withdrawn, their mean time-on-task rates dropped by an amount that ranged from 11.2% to 28.1%. When the mean rates in Phase I and Phase III were compared, it was found that on average each student participant's time-on-task rates were raised. The greatest change was found in student participant W whose mean time-on-task rates in Phase III after Peer Support had been withdrawn was 24.8% higher than that before Peer Support was implemented. This suggests that carryover effects might have occurred.

Regarding the implementation of Whole Class Strategies, the increase in mean time-on-task rates ranged from 15.3% to 32.6%.

4.1.a.ii   Effect Sizes

Both PND and SMD_{all} were computed in the study to find the effect sizes of the two types of intervention. The results are summarised in Table 5. For all student participants, the PND was 100% for both Peer Support and

Whole Class Strategies. Such results are also illustrated in Figures 5 to 8. It can be found that in each student participant's visual representation of attention performance, all data points in Phases II and IV were higher than the PND line.

Table 5.   Results of Effect Size Measurements on Peer Support and Whole Class Strategies

Student Participant	Using Percentage of Non-Overlapping Data (PND)		Using Standard Mean Difference (SMD$_{all}$)	
	Peer Support	Whole Class Strategies	Peer Support	Whole Class Strategies
W	100%	100%	3.01	1.91
X	100%	100%	4.51	1.98
Y	100%	100%	9.74	2.36
Z	100%	100%	4.09	1.47

When SMD$_{all}$ was used, the effect sizes of Peer Support for the four student participants ranged from 3.01 to 9.74 while the effect sizes of Whole Class Strategies ranged from 1.91 to 2.36.

Analysis of results of the study showed that no matter which method was used, both Peer Support and Whole Class Strategies had a large effect size for all student participants[1]. That means, both intervention strategies were very effective in raising the time-on-task rates of all student participants.

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[1] According to Scruggs and Mastropieri (1998), an intervention with PND score above 90% represents very effective; between 70% and 90% represents effective; between 50% and 70% represents questionable; below 50% represents ineffective. Cohen (in Olive & Franco, 2008) suggests that an intervention with effect size value of 0.8 or more using SMD$_{all}$ is regarded as having a large effect size; medium effect size if the value equals to 0.5; small effect size if the value equals to 0.2.

4.1.b Association between Type of Classroom Activity and On-task/Off-task Behaviour

As explained in Section 3.5.c.ii, a Chi-square test was carried out for each student participant to test for association between his/her attention behaviour and the type of classroom activity in Phase I. There were three categories of attention behaviour (on-task, off-task or undetermined) and eight types of classroom activity classified in the study (see Section 3.5.a.v or Appendix 7). When the whole set of data was processed, the SSPA output reports showed that for each student participant there were more than 20% of cells in the crosstabulation table that had expected counts less than five (Appendix 14). The large proportion of very low expected frequencies arising from them might distort chi-square tests (Field, 2009). Such a high proportion of cells with low expected counts came from attention behaviour that was recorded as 'undetermined', and five types of classroom activity which were 'students working individually without concrete resource support', 'students working in pairs/groups without concrete resource support', 'students working individually with concrete resource support', 'procedural activities' or 'others'. The observed counts of cells related to 'undetermined' behaviour or the above types of classroom activity were all very small. That meant those classroom activities were not frequently used in the class. The data was thus filtered to exclude those items to avoid test results being distorted (Appendix 15). The Chi-square tests were focused on on-task/off-task behaviour and the three types of classroom activity that occurred frequently which were 'teacher talking to the whole class (TALK)', 'teacher using a question and

answer method of teaching to the whole class (Q&A)', and 'students working in pairs/groups with concrete resource support (R+GP)'.

After data filtering, no cells had expected counts less than five in the contingency tables of three student participants' analysis report. For student participant X, there was 1 cell (16.7%) having expected counts less than five. The expected count of that cell was 4.97. The contingency tables for each student participant were 2x3. In contingency tables larger than 2x2, it is acceptable to carry out Chi-square tests if no more than 20% of expected counts is less than five and no expected count is less than one (Field, 2009). Chi-square tests showed a significant association between the three types of classroom activity and the on-task/off-task behaviour for all student participants (Appendix 16. The results are summarised in Table 6.

Table 6. Results of Chi-square Test on the Association between Type of Classroom Activity and Each Student Participant's On-task/Off-task Behaviour

Student Participant	W	X	Y	Z
Number of cases	105	105	103	103
Pearson chi-square value	48.17	12.19	53.84	10.97
df	2	2	2	2
Asymptotic significance (2-sided)	.000	.002	.000	.004
Phi Value	.68	.34	.72	.33
Association between classroom activity and on-task/off-task behaviour	Sig.	Sig.	Sig.	Sig.

Note. Sig.: statistically significant

The adjusted standardized residuals shown in the Chi-square tests reports (Appendix 16) were further analysed to investigate which types of classroom activity were responsible for the significant chi-square results. Table 7 showed the types of classroom activity that had adjusted standardized residuals more than 1.96 or less than -1.96, representing

significance at the 5% level. They accounted for the association between type of classroom activity and on-task/off-task behaviour. Cells marked as 'on-task' in Table 7 represented a greater value of observed count than expected count in on-task behaviour while those marked as 'off-task' represented a greater value of observed count than expected count in off-task behaviour.

Table 7. Types of Classroom Activity that Accounted for the Association with Each Student Participant's On-task/Off-task Behaviour in Phase I

Type of Classroom Activity \ Student Participant	W	X	Y	Z
TALK	off-task	off-task	off-task	/
Q&A	off-task	/	off-task	/
R+GP	on-task	on-task	on-task	on-task

Note. TALK: teacher talking to the whole class
   Q&A: teacher using a question and answer method of teaching to the whole class
   R+GP: students working in pairs/groups with concrete resource support
   on-task: statistically significant, *p* < .05, 2-tailed, df = 2, with on-task behaviour having a greater observed frequency than expected frequency
   off-task: statistically significant, *p* < .05, 2-tailed, df = 2, with off-task behaviour having a greater observed frequency than expected frequency
   / : statistically insignificant

Chi-square test results showed that the type of classroom activity was significantly associated with on-task/off-task behaviour for all student participants. For student participant W, the association was significant, $\chi^2(2)=48.17$, *p*= .000, Φ=.68. This was accounted for by classroom activities 'TALK' and 'Q&A' that were more likely to have W displaying off-task

behaviour, and by classroom activity 'R+GP' that was more likely to have W displaying on-task behaviour. For student participant X, the association was significant, $\chi^2(2)= 12.19$, $p= .002$, $\Phi=.34$. This was accounted for by classroom activity 'TALK' that was more likely to have X displaying off-task behaviour, and by 'R+GP' that was more likely to have X displaying on-task behaviour. For student participant Y, the association was significant, $\chi^2(2)= 53.84$, $p= .000$, $\Phi=.72$. This was accounted for by classroom activities 'TALK' and 'Q&A' that were more likely to have Y displaying off-task behaviour, and by 'R+GP' that was more likely to have Y displaying on-task behaviour. For student participant Z, the association was significant, $\chi^2(2)= 10.97$, $p= .004$, $\Phi=.33$. This was accounted for by classroom activity 'R+GP' that was more likely to have Z displaying on-task behaviour.

In summary, the type of classroom activity was significantly associated with the on-task/off-task behaviour for all student participants. All student participants were more likely to show on-task behaviour when they were working in pairs/groups with concrete resource support. Three of them were more likely to have off-task behaviour when the teacher was talking to the whole class; two of them were more likely to have inattentive behaviour when the teacher was talking using a question and answer method of teaching to the whole class.

4.1.c Patterns of Classroom Activity

4.1.c.i   Checking for Confounding Effects

As the Chi-square tests had showed a significant association between the type of classroom activity and the student participants' on-task/off-task

behaviour, the patterns of classroom activity across Phases I to III were studied to check if confounding effects existed in testing the effectiveness of Peer Support. The mean percentages of the eight types of classroom activity classified in the study in Phases I to III are shown in Table 8.

Table 8. Mean Percentages of Different Types of Classroom Activity in Phases I to III

Type of Classroom Activity	Phase I	Phase II	Phase III
TALK	15%	17%	7%
Q&A	51%	39%	50%
INDI	7%	12%	31%
GP	4%	2%	2%
R+INDI	1%	9%	0%
R+GP	22%	18%	0%
Procedural Activities	1%	3%	3%
Others	0%	1%	8%
	100%	100%	100%

Note. TALK: teacher talking to the whole class

Q&A: teacher using a question and answer method of teaching to the whole class

INDI: students working individually without concrete resource support

GP: students working in pairs/groups without concrete resource

R+INDI: students working individually with concrete resource support

R+GP: students working in pairs/groups with concrete resource support

Percentage of a type of classroom activity on an observation day = The amount of that type of classroom activity ÷ 40

Mean percentage of a type of classroom activity in a phase = The average value of all percentages of that type of classroom activity over all observation days in that phase

The pattern of classroom activity was not totally stable across Phases I to III. The percentage of Q&A dropped in Phase II and it might be argued that it accounted for the student participants' improvement in attention behaviour observed when Peer Support was implemented. However, a fall in the percentage of R+GP in Phase II would theoretically lower the likelihood

of having on-task behaviour. That meant some aspects of the change in the activity pattern might have given a favourable impact on the student participants' on-task behaviour while some other aspects might have given an unfavourable impact on their on-task behaviour. Moreover, the data did not indicate tremendous changes in the activity pattern across different phases, especially between Phases I and II. Therefore, it was argued that there was not enough information to conclude that the impacts due to changes in the classroom activity pattern had confounded the test results obtained on the effectiveness of intervention Peer Support no matter whether the activities helped or hindered on-task behaviour.

4.1.c.ii   Special Types of Classroom Activity

Remarks recorded on the systematic observation schedule on Day 11 in Phase III indicated that the teacher played a video in class to demonstrate maths concepts and the activity was classified as 'others' in the study. Such activity constituted 23% of the observed classroom activities on that day. Student participants' attention behaviour has already been shown to have significant association with the type of classroom activity. It is suggested that the use of audio-visual aids on Day 11 might be related with the obvious rise in time-on-task rates of all student participants as shown in Figures 5 to 8 (Section 4.1.a.i).

On Day 13 and Day 14 in Phase IV, the teacher asked students who wanted more explanation to come to him. He then taught those students in a small group while other students were working individually. Those activities were also recorded as 'others'. Student participants W, Y and Z joined the small group learning voluntarily on Day 13; student participants X, Y and Z

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joined voluntarily on Day 14. This teaching approach might have impacts on the student participants' attention behaviour. However, no further investigation was made of it in the study.

4.1.d Student Participants' Rating

Regarding student participants' rating on the effectiveness of Peer Support, three student participants rated it as 'extremely helpful' and one rated it as 'very helpful'. The mean score rated by the four student participants was 4.75 out of 5 where higher value represented higher effectiveness. The median and the mode were both 5.

Regarding the strategy 'Teacher Using Sign Language' as a form of Whole Class Strategies, each of the four options 'slightly helpful', 'moderately helpful', 'very helpful' and 'extremely helpful' were chosen by one student participant. The mean score obtained from the student participants was 3.5 out of 5 where higher value represented higher effectiveness. The median was also 3.5. No mode was found. For the strategy 'Students Using Sign Language' as another form of Whole Class Strategies, three student participants rated 'very helpful' and one rated 'extremely helpful'. The average score was 4.25 out of 5. The median and the mode were both 4.

Overall, the student participants rated the above intervention strategies, especially Peer Support, as highly effective. Details of the student participants' rating are showed in Table 9.

Table 9. Student Participants' Rating on the Effectiveness of Different Intervention Strategies

Intervention Strategy / Student Participant	W	X	Y	Z
Peer Support	Extremely Helpful	Extremely Helpful	Very Helpful	Extremely Helpful
Whole Class Strategies				
Teacher Using Sign Language	Moderately Helpful	Very Helpful	Extremely Helpful	Slightly Helpful
Students Using Sign Language	Very Helpful	Very Helpful	Very Helpful	Extremely Helpful

Note. Five options provided to student participants: not at all helpful, slightly helpful, moderately helpful (explained "moderately means half and half"), very helpful, extremely helpful

Each student participant's self-rating on the type(s) of classroom activity that he/she had better attention are showed in Table 10. Student participants X, Y and Z also mentioned the type of classroom activity under which their attention was not so good.

Table 10. Each Student Participant's Self-evaluation of His/Her Attention Performance under Different Types of Classroom Activity

Type of Classroom Activity / Student Participant	W	X	Y	Z
TALK				Better
Q&A		Not So Good		
INDI	Better		Not So Good	Not So Good
GP				
R+INDI	Better		Better	
R+GP		Better	Better	Better

Note. TALK: teacher talking to the whole class
Q&A: teacher using a question and answer method of teaching to the whole class
INDI: students working individually without concrete resource support
GP: students working in pairs/groups without concrete resource
R+INDI: students working individually with concrete resource support
R+GP: students working in pairs/groups with concrete resource support

Three student participants perceived that their attention was better when they were working in pair/group with concrete resource support. The result was similar to the results obtained from systematic observation (Table 7 in Section 4.1.b). Apart from this, no obvious pattern was found.

4.2 Qualitative Results

Thematic analysis was conducted from interview data to understand the student and teacher participants' experience in receiving/implementing the interventions. Data collected from the interview on Peer Support with each student participant were combined to form a large data set, while those from the interview on Whole Class Strategies with each student participant formed another data set. Data collected from the interviews with the two teacher participants formed the third data set. The three data sets were analysed separately. A thematic network was constructed for each data set.

Although there are no rigid rules about the number of themes generated to make a network, Attride-Stirling (2001) highlighted that it is not very practical to have more than 15 themes. In this study, no more than seven main themes were generated to understand each thematic network. The thematic analysis results are reported in the following sections.

4.2.a Student Participants' Perspectives

At the beginning of the first interview, each student participant was asked retrospectively before the project had started what things he/she was doing when he/she was not paying attention in class. Student participant W said he was "fidgeting with the pencils and the resources", 'looking

around…the stuff", and "talking to people sometimes". Student participant X's answers were "talking", "messing with other things" and "read the books when the teacher's talking". Student participant Y replied "talking to my friend on a different table", "talk to my peers" and "stared around". X said "I get bored without talking 10 minutes". Student participant Z said "I drew on the white board", "I would take talk" and "The questions on the board..I would copy them down..when the teacher didn't see it". Z said the teacher did not want him to copy the questions but he did that because "I like writing".

4.2.a.i   Qualitative Results on Peer Support

Seven themes were interpreted regarding Peer Support: Awareness, Goal, Peer Pressure, Reinforcement, Memory, Positive Outcomes, and Carryover. Most themes emerged from all student participants' data set. The theme 'Awareness' appeared in two student participants' data set while the theme 'Memory' appeared in three student participants'. I decided to include 'Awareness' and 'Memory' as the themes in the study because I interpreted them as important in understanding the effectiveness of Peer Support from students' perspectives.

The thematic network is shown in Figure 9. The relationships among the themes are illustrated by the lines linking them. The five themes 'Awareness', 'Goal', 'Peer Pressure', 'Reinforcement' and 'Memory' experienced by the student participants contributed to the theme 'Positive Outcomes' which extended to the theme 'Carryover'.

Figure 9. Thematic Network of Student Participants' Perspectives on Receiving Peer Support
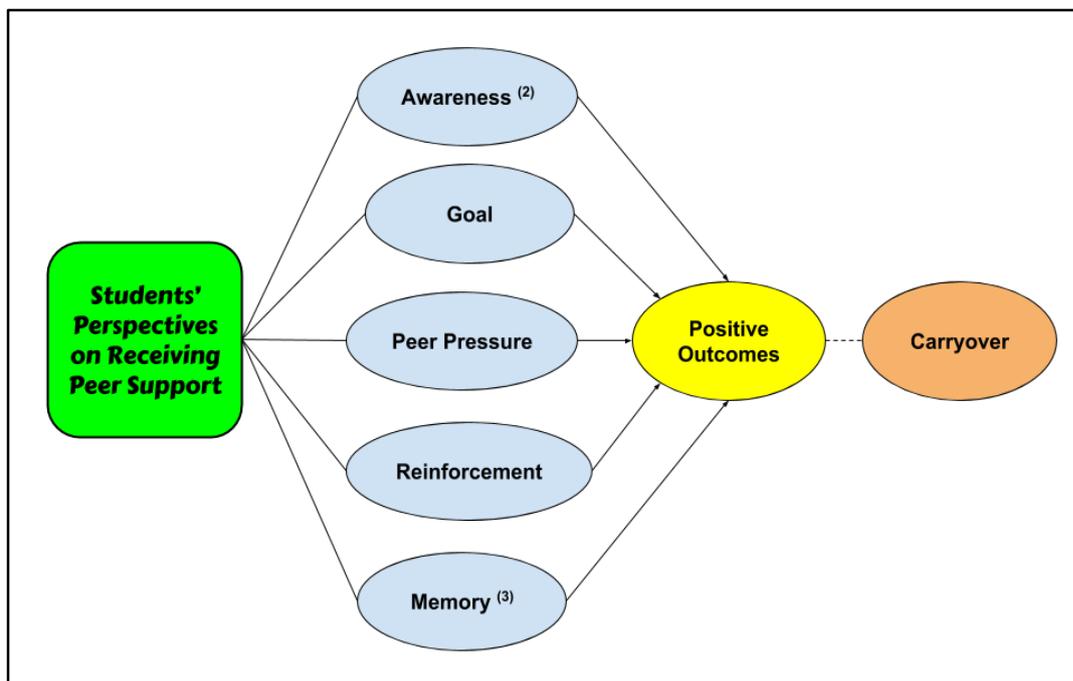
Note. The number in brackets represents the number of participant's data from which the theme was interpreted; themes without any bracket were interpreted from all student participants' data

A straight line represents a superordinate-subordinate relationship; an arrow represents a causal relationship suggested based on the interpretation of the data; a dotted line represents other relationship

4.2.a.i.a   Main Theme 'Awareness'

The theme 'Awareness' was interpreted from two student participants' interview data. Two student participants mentioned explicitly that they 'knew' something in the process and the awareness of their current conditions had helped them improve their attention behaviour.

> *Conversations when X talked about what his peer supporter had done*
> *('R' represented the researcher):*
>   R: *What did she do?*
>   X: *She helped me. She passed the card to me when I lost attention.*
>   R: *What did you think when you saw the card?*

> *X: Surprised.*
>
> *R: Why were you surprised?*
>
> *X: Because I didn't know that she would do that…I didn't know that she was looking at me.*
>
> *R: What did you do then?*
>
> *X: Stop and listen to the teacher.*

Student participant X was not aware that his behaviour was observed by his peer. Although he had already known that he would be supported by his peer when he lost his attention, he felt "surprised" when he suddenly knew that his peer "was looking at me". To him, that kind of awareness was a step that had made him change his behaviour.

> *Conversations after X had said the Peer Support session was helpful:*
>
> *R: How is that session helpful?*
>
> *X: Before I did not know but when I met you you told me what to do and what not to do.*
>
> *R: What did I tell you?*
>
> *X: You told me if you talk, my partner gives a reminder and I would stop.*

My interpretation is that X was not aware of the behaviour in class that he was expected to do or not to do. After the Peer Support Session, he knew the specific actions he was expected to take. Such awareness had led to a change in his behaviour during use of Peer Support.

It was found in student participant X's, Y's and Z's data set that before the project started they were not aware of their inattentive behaviour in the class until the teacher "stared at me" or "told me off". Z compared his situations before and after the intervention and said explicitly that he did notice when he was losing attention in class after he had received the intervention.

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Conversations when Z talked about his attention before the project started:

    R: *At the time when you're talking or when you're writing on your white board, did you notice, "Oh, I'm losing attention"?*

    Z: *Not before, but now I do.*

Student participants' awareness, including the awareness of their inattentive behaviour, the awareness of being observed by other people in the classroom, and the awareness of what behaviour they are expected to have and what behaviour they are expected not to have, was a factor that had brought about some changes in their attention behaviour in class during intervention.

4.2.a.i.b Main Theme 'Goal'

The theme 'Goal' was evident in all student participants' interview data. There was something that they wanted to achieve or something that they wanted to avoid. Those things had motivated them to improve their concentration in class.

Conversations when Z talked about receiving Peer Support ('P-Z' represented Z's peer supporter):

    R: *When P-Z told you "look at the board" or showed you this card, what did you think?*

    Z: *I thought..err..have to concentrate or I get a low..err..for my report. I get a low..err..a low record.*

    R: *Oh, low record?*

    Z: *Yeh, err for Year Six I'll be losing... I don't want to be bad for that, and then I want to be engineer, but how I'm going to be engineer if I don't concentrate?*

    ......

    Z: *Then I think, "How I'm I going to be engineer if I get low score for my report?" It means I might not know what to do.*

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The above data extract reflected that Z's career goal of being an engineer had given him a motive to concentrate when he was supported by his peer. Apart from his achievement goal, Z said that the card presented by his peer supporter reminded him about getting in trouble, a thing that he did not want.

Conversations when Z talked about receiving Peer Support:
Z: *It brings me back and then I look at the board. If not, I'd get in trouble. It reminds me that I might even get in trouble.*
R: *Because you don't what the trouble?*
Z: *Yeh. I don't want to be in trouble.*

Student participant X also used the words "got into troubles" in his interview. Y had a similar goal to avoid troubles which I interpreted from the term "stay inside" she used. Y's goals were to play outside and to avoid staying inside.

Conversations when Y talked about receiving Peer Support ('P-Y' represented Y's peer supporter):
R: *When you saw this card from P-Y, what did you think?*
Y: *I thought that I'm...I'm not getting on with my work. I need to get on with my work because I don't want to stay inside.*
R: *You don't want to..*
Y: *Stay inside. I want to play outside.*
R: *Do you mean that if you are doing not well, then you have to stay inside?*
Y: *Yes.*

W said he and P-W, the girl supporting him, were "mean to each other" before the Peer Support Session. He felt that the Session was helpful in a way that it made him want to be kind to each other. Although W did not relate this goal of 'being kind/friend to each other' directly with his improvement in

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concentration, my interpretation was that the goal X set after the Session had indirectly motivated him to respond positively to P-W's support and contributed to the positive outcomes of Peer Support.

> *Conversations when W talked about the Peer Support Session:*
> W: *Helpful yeh, it was helpful. In a way, like, making me think that I want to do it.*
> R: *Make you think that you want to do it?*
> W: *Yeh.*
> R: *Do what?*
> W: *Do what you said...be kind to each other, we're friends to each other.*

In another extract, W mentioned that when he saw the card presented by his peer he talked to himself that he made the card with me during the Peer Support Session and he had to concentrate. I interpreted that during the Session he had determined to improve his concentration. The goal appeared in his mind again when he saw the card from his peer and that had helped him change his behaviour.

> *Conversations when W talked about receiving Peer Support:*
> R: *[skipped]…Then, what did you think when she showed you this card, and said, "Concentrate"?*
> W: *I...[speech unintelligible]..you. "I made it with you."*
> R: *Sorry?*
> W: *"I made it with you" and then…and "I have to concentrate more", like you told me to concentrate.*
> R: *Who is "you"? Do you mean R or P-W?*
> W: *R.*

X had indicated similar intentions. A goal was set implicitly after he had attended the Peer Support Session. In the following extract, I interpreted

that X did not just 'know' what to do but he had also 'determined' what to do from the term "and I would stop".

> *Conversations after X had said the Peer Support Session was helpful:*
>> *X: Before I did not know but when I met you you told me what to do and what not to do.*
>> *R: What did I tell you?*
>> *X: You told me if you talk, my partner gives a reminder and I would stop.*

4.2.a.i.c   Main Theme 'Peer Pressure'

The theme 'Peer Pressure' was evident in all student participants' data set. I interpreted that all of them experienced a certain extent of pressure from their peer supporters when they lost attention in class. Z felt that pressure as his peer supporter told him what to do directly and told him he might get in trouble if he did not attend well. W felt the pressure because his peer supporter put the card on his table and would not take it back until he concentrated. X perceived that pressure as his peer "was looking at me" and he felt "ashamed". Y also felt 'bad' when her peer supporter presented the card to her. I interpreted that bad feeling was a kind of sorrow for her peer supporter, who was her friend before the project started, since her inattentive behaviour interrupted her friend's own work. Although the four student participants experienced the peer pressure in different ways, all of them had changed their attention behaviour due to the pressure.

> *Conversations when Z talked about the support process:*
>> *Z: She gave me that thing [the card] and she told me what to do if I wasn't listening.*
>>
>> *...*

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Z: She would put that in front of me and she said you might get in trouble…

Conversations when W talked about the support process:

R: What did she do?

W: She worked like this, she put it forward for me, and then she said, "Concentrate, W."

R: Okay, put forward, and said..

W: Then she left it there until I concentrated.

R: You mean, left the card on your table?

W: Yeh, and then didn't put it back until I would concentrate.

Conversations when X talked about the support process:

R: What did you think when you saw the card?

X: Surprised.

R: Why were you surprised?

X: Because I didn't know that she would do that…I didn't know that she was looking at me.

R: What did you do then?

X: Stop and listen to the teacher.

R: How did you feel about that?

X: Ashamed.

R: Why?

X: Because I was not listening to the teacher.

Conversations when Y talked about the support process:

R: … What did she do?

Y: She put it in front of me and then when she's got on with her work, I put it.. when I looked at it I put it back and then got on with my work.

……

R: You gave it back to her. How did you feel at the time?

Y: Like I feel bad for not..for not..err for not using it at the time...for not err...like..just like looking around so she has to stop working to give me this. I feel bad.

R: You feel bad for?

Y: P-Y.

R: For P-Y. Why?

Y: *Because then she has to stop working and give me..give me the card.*

4.2.a.i.d Main Theme 'Reinforcement'

The theme 'Reinforcement' emerged from all student participants' data. The forms of reinforcement included tangible and intangible ones. Tangible rewards from parents were found in W's data set. In Y's data set, a recognition system with 'pinks' (representing good records) was mentioned. When Y had improved her attention in class, she received more 'pinks' and that had motivated her to concentrate. Praise by the Class Teacher was found in both W's and Y's interview data. Class Teacher's praise even made W's parents feel proud which was a reward to W. In all four student participants' data sets, positive emotions such as "feel good", "feel like it" were found that served as intangible rewards of staying attentive in class.

Conversations when W talked about the support process:

W: *It's helpful like...err..first, I concentrate and it makes my mom and dad proud. Yah...and they buy me lots of stuff..when I get it, when I re-concentrate.*

R: *How did they know that you concentrate?*

W: *Because Mr. (name of CT) tells them that I have been fantastic today. I'm getting better and better.*

Conversations when Y talked about her situation in Phase III:

Y: *Like I feel happy.*

R: *You feel happy. Happy with what?*

Y: *That now I've improved. I don't get that much of bad like the last time.*

R: *You feel that better. You feel you are not bad. Do you mean that before half term break, sometimes you feel bad?*

Y: Yeh.

R: Bad for what?

Y: Err..err blue were most of my work. I only got a few pinks.

R: A few pinks?

Y: Yeh, that means you're right.

R: Pinks means doing good?

Y: Yes.

R: Okay, you received a few pinks. After those two weeks, you receive more pinks?

Y: Yes.

……

Y: Yes. Mr. (name of Class Teacher) was even happy with me. I've improved.

Conversations when Z talked about his situation in Phase III:

R: How is your attention now because she has stopped supporting you?

Z: My attention is good.

R: It's good?

Z: Yes. I feel like it.

……

Z: It's good. It's…it's getting better, I love it.

4.2.a.i.e   Main Theme 'Memory'

Three student participants talked about things around the theme 'Memory'. Both X and Y used the term 'remember not to …' when they talked about their inattentive behaviour after the project.

Conversations when X talked about his situation in Phase III:

X: When the teacher talks I don't read much. When I feel like doing it I remember not to do it.

Conversations when Z talked about his situation in Phase III:

R: Why that? Now P-Z has already stopped to support you a lot, but you say you're still keeping progress.

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> Z: Yeh, I remember well.
>
> R: You remember well?
>
> Z: Yeh, and I remember not to talk.

Student participant W used the term 'remember' to describe how the strategy Peer Support would help a child who struggled with attention. I interpreted that, from his experience, the process of making the card and the things shared in the Peer Support session had help him remember to concentrate.

> *Conversations when W talked about his advice on Peer Support ('P-W' represented W's peer supporter):*
>
> W: *I would make card, you'd make a card like that, and tell them that what you said to us,...err and I would write whatever..whatever that you said on it. Then, they would remember like I did..err what to do, concentrate, make attention more.*

4.2.a.i.f Main Theme 'Positive Outcomes'

The theme 'Positive Outcomes' was obvious. Many codes such as 'improved', 'better at concentrating' were found in the student participants' data. In addition, all student participants were asked to use three different words to describe their experience of receiving peer support. All of them used adjectives that carry positive meaning. W said "fantastic", "excellent" and "good...more than good". X's responses were "happy", "excited" and "amazed". Y thought of two words, "happy" and "helpful". Z said "concentration is better", "excellent" and "marvellous". It indicated that the student participants had positive experiences with the intervention, not just regarding improvement in their attention but also the positive emotions that it had brought about. Such positive emotions were the outcomes of the

intervention, and then became reinforcers that motivated the student participants to stay attentive in class, as reported under the theme 'Reinforcement'.

4.2.a.i.g   Main Theme 'Carryover'

All student participants' data sets reflected that the impact of Peer Support did not cease in Phase III and therefore the theme 'Carryover' was interpreted.

> *Conversations when W talked about his experience after the two weeks' support:*
>> *R: How is your attention in class after those two weeks? That means, since P-W has stopped to give you friendly reminder.*
>> *W: Good.*
>> *R: Still good. Do you know why?*
>> *W: Because...I don't know how to explain it.*
>> *R: Don't worry. Just try.*
>> *W: Because that card you showed me, it helped me a lot, and it did a lot to make me concentrate. Whereas...the picture you showed me there...they made me concentrate. That's it.*
>
> *Conversations when Y talked about her experience after the two weeks' support:*
>> *R: [skipped]..What do you think about your attention compared with that before half-term break?*
>> *Y: It's improved a bit.*
>> *R: Why that it's improved?*
>> *Y: Because when she had this...it helped me to get on with my work and now without this I feel good. I concentrate.*

Two student participants experienced 'carryover effects' because their peer supporters continued to provide some sort of support to them in Phase III, although the support was not so great as that provided in Phase II.

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Conversations when Z talked about his experience after the two weeks'
support:

> R: *After those two weeks P-Z has stopped supporting you. Is that*
> *right? Did she continue to support you?*
>
> Z: *Just a bit, not that much.*
>
> R: *Just a bit. In what way?*
>
> Z: *Err "Shall I help you?" Err "Shall I tell you what to do?"*

4.2.a.ii   Qualitative Results on Whole Class Strategies

In the interviews on Whole Class Strategies, the student participants were asked questions around their experience when the teacher used sign language to get their attention, when the teacher asked them to use sign language to give response, and when they were learning under different types of classroom activity. The student participants' interview data on Whole Class Strategies did not contain much thick data. Only one theme 'Solving Hard Problems' emerged from the data (Figure 10).

Figure 10. Thematic Network of Student Participants' Perspectives on Receiving Whole Class Strategies
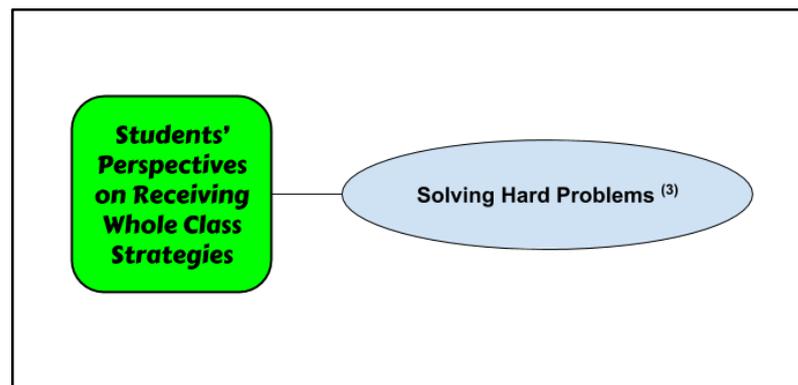
Note. The number in brackets represents the number of student participant's data from which the theme was interpreted

This theme was evident in X's, Y's and Z's data set in which conversations were around the types of classroom activity where their concentration got better or worse. All these three student participants perceived that they concentrated better when they were working in pairs/groups with concrete resource support because they could receive more help to solve hard problems. Both student participants Y and Z used the term 'hard questions' or 'hard stuff' explicitly in their talks. The same theme was interpreted from student participant X's data, although the term 'hard' was not found.

> *Conversations when Y talked about the type of classroom activity that she concentrated better:*
>
> Y: *Because when we have some hard questions and I use my concrete resources they help me a lot. Errm…when..when we are working with a partner…a peer..and we get a hard question we can work together and work it out.*

> *Conversations when Y talked about the type of classroom activity that her concentration got worse:*
>
> Y: *Because sometimes we get hard stuff to do…and I can't do it.*

> *Conversations when X talked about the type of classroom activity that he concentrated better:*
>
> X: *Because you get a hand..by people and if you don't make it they can help you.*
>
> R: *OK. You choose number 6 [Students working in pairs/groups with concrete resource support] rather than number 4 [Students working in pairs/groups without concrete resource support]. Why?*
>
> X: *If you don't know and..other people are busy and then just like you can use the resources to help you.*

This theme also appeared in the data in which the student participants were talking about their experience in using thumbs up and thumbs down to give responses to the teacher (Students Using Sign Language). They thought that was helpful to their attention because it helped their teacher to know and come to help them when they did not understand the learning tasks.

Conversations when Z talked about using thumbs up/down strategy:
> Z: *It's like a rating. To rate how you like…how you were.*
> R: *Do you think it's helpful or not to your concentration?*
> Z: *Yeh. It's helpful because..sir would know how we think..and sir would give us help a bit more.*

Conversations when Y talked about using thumbs up/down strategy:
> Y: *If we got a hard work, we finish that..errm..errm..sir said "Are you okay with it?" or "Do you need a bit more help?" Then you tell him with your thumbs.*

4.2.b Teacher Participants' Perspectives

Seven main themes were interpreted from the teacher participants' data set. Themes 'Knowledge' and 'Time' are important in the implementation of both types of intervention. The themes 'Peer Supporters' Role', 'Not Really Effective' and 'Other Benefits' applied to Peer Support only while the themes 'Interactive Teaching' and 'Positive Outcomes' applied to Whole Class Strategies. Under the main theme 'Knowledge', three sub-themes were generated which were 'Awareness', 'Theories' and 'Their Children'. Under the main theme 'Peer Supporters' Role', three sub-themes were interpreted which were 'Personal Characteristics', 'Coaching' and 'Expectations'. The thematic network of the teacher participants' perspectives is shown in Figure 11.

Figure 11. Thematic Network of Teacher Participants' Perspectives on Implementing Peer Support and Whole Class Strategies
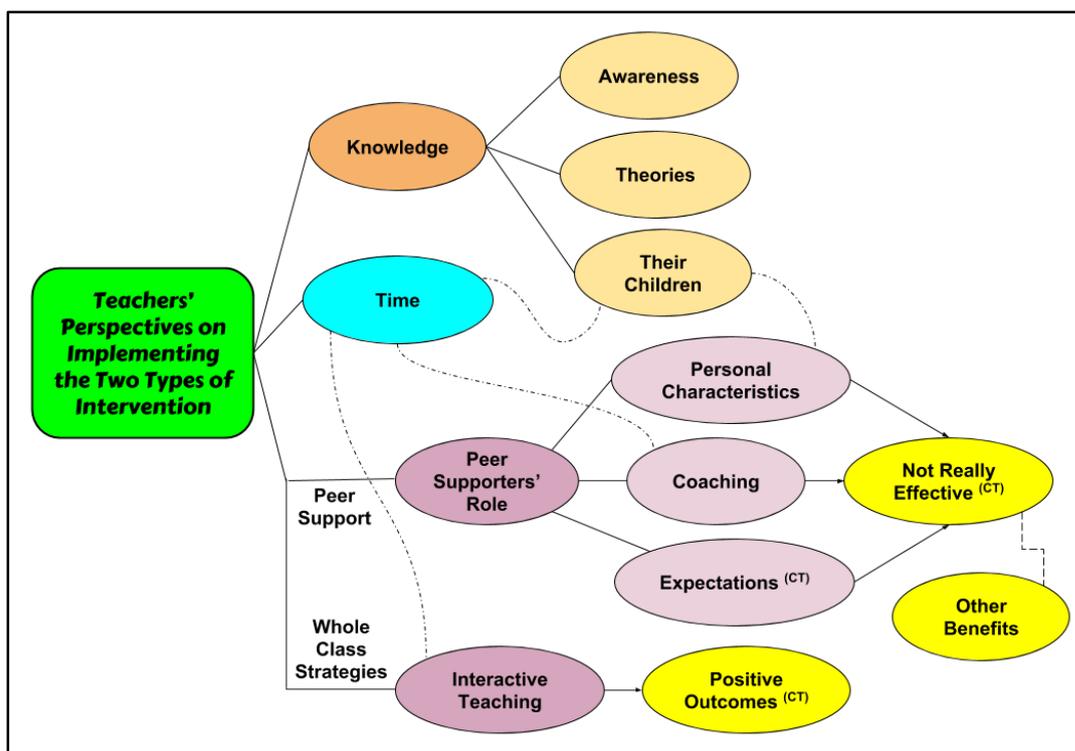
Note. Themes with 'CT' in brackets are those interpreted from the Class Teacher's data only; themes without any bracket are those interpreted from both the Class Teacher's and the SENCO's data

A straight line represents a superordinate-subordinate relationship; an arrow represents a causal suggested based on the interpretation of the data; a dotted line represents other relationship

4.2.b.i   Main Theme 'Knowledge'

Main theme Knowledge was evident in the teacher participants' data set, no matter from their talks around the intervention preparation (the Peer Support session and the Professional Development sessions) or the actual intervention process. Its sub-themes are reported as follow.

4.2.b.i.a   Sub-theme 'Awareness'

Before taking part in the research project, both the Class Teacher (CT) and the school SENCo (SC) had heard of peer support as a way to help

students with learning difficulties to understand learning tasks. However, they did not notice that peer support could be aimed at improving students' attention in class. The sub-theme 'Awareness' was generated as it was an important step to start an implementation of the strategy.

> *Conversations when CT talked about his experience before the project*
> *started:*
>> R: *Before this research project or before the time we first met, had*
>> *you heard of this type of peer support intervention err to help*
>> *children with attention difficulties?*
>> CT: *Yes. Yes, I've used it…I think…no, no, I'm sorry. I've heard..I*
>> *know this strategy in terms of peer support but not in terms*
>> *of..for attention. So, no, I haven't heard about it before but I've*
>> *used similar tactics to generally help them in scaffolding.*
>> R: *Em you mean support for..learning?*
>> CT: *Yes, for the learning.*
>> R: *But not target for students with attention difficulties?*
>> CT: *No, no.*

CT also became more aware of the various forms of providing reminders to students when they lost attention.

> *Conversations when CT talked about his views on Peer Support:*
>> CT: *…through peer supporting and it's nothing that is necessarily*
>> *new. But I would say that in terms of the actual specific*
>> *strategies that you provided in terms of the options that they*
>> *could do…in terms of the verbal, the written…there…there are*
>> *extra things which may be not every teacher would be aware*
>> *of…*

This sub-theme emerged again when the teacher participants talked about Whole Class Strategies. Both CT and SC had experience with using Whole Class Strategies prior the research project, yet they were not fully

aware of the possible barriers to attention and a range of possible strategies that they could use. CT used the term 'refreshing' to describe his experience. Especially through the Professional Development Sessions, he became more aware of the things that he might have lacked or forgotten.

> *Conversations when CT talked about the Professional Development sessions:*
>> *R: [some parts of the speech skipped]…What do you think about those two sessions?*
>> *CT: [skipped]…It was very much, it was some good discussions and I felt that it..I felt more aware of the possible barriers to attention. That's why I thought it was very effective… [skipped]…The second session I found, in terms of the strategies that..the whole class strategies that we implemented, nothing was new. I think it was very much a case of..It very much reminded myself as to things that I should..maybe..be implementing so I thought that was a nice refreshing session. Refresh session which made me realize where I possibly lacked in my strategies.*

> *Conversations when CT talked about his views on implementing Whole Class Strategies:*
>> *CT: [skipped]…they've helped me remind myself of strategies that I knew but maybe I've forgotten about. It's refreshed my understanding of how to improve attention.*

4.2.b.i.b   Sub-theme 'Theories'

The sub-theme 'Theories' was evident in both CT's and SC's data set, especially around the implementation of Whole Class Strategies. This sub-theme was generated from codes such as 'theories', 'psychology' and 'background knowledge' that appeared repeatedly in the teacher participants'

interview data. From their perspectives, inputs around 'theories' were important and useful in the effective implementation of the strategies.

Conversations when CT talked about the Professional Development Sessions:

> R: ...What do you think about those two sessions?
>
> CT: I thought they were very effective. I think in terms of this strategy led where in terms of the more theories that the first session I really enjoyed that. I thought it was very informative and it was a good mix of written theories as well as some clips to back up your...[skipped]

Conversations when CT talked about implementing Whole Class Strategies:

> R: What things do you think are the most helpful or not helpful?
>
> CT: I would think personally I would say for myself it was the theory behind I think that first session in terms of the understanding the side of the psychology of the children in terms of trying to get into their mind as to...why they might have those barriers so that I can better understand them and support them. I found that very useful and I would say I found that the most useful. Then obviously talking through the possible strategies that we could then implement as a whole class. I thought the talking through the possible pros and cons of those strategies with the professional was very, very useful.
>
> ......
>
> CT: I would say that background knowledge. That background theory knows that they might have forgotten from their teacher training days or they didn't have.

4.2.b.i.c   Sub-theme 'Their Children'

The sub-theme 'Their Children' was interpreted from both teacher participants' interview data. This sub-theme carries a different meaning from the code 'the psychology of the children' because the latter one concerns

about children in general but the sub-theme concerns about 'their' children. As illustrated in the following extracts, the teacher participants' views were interpreted as 'Knowledge of Their Children' since emphasis were found on the specific children in the class.

> *Conversations when CT talked about Peer Support:*
> CT: *I would say it's very much a case of…err…a need to have a good knowledge of their children. Needs to know who works well with each other. Need to know who can provide that peer support role and for it to be effective…[skipped]*

> *Conversations when CT talked about Whole Class Strategies:*
> CT: *…I would say that these strategies, I would not implement them straight away. If you've got to your class in September, it would take at least a few weeks if not a month so that you really understand your children and where they're taken, who works well with each of them…In terms of those children who have the attention issues, understanding what their triggers are, in terms of what works for them…*

> *Conversations when SC talked about Peer Support:*
> R: *Do you think that there's any difficulties in implementing this kind of strategies in school?*
> SC: *It depends on the children. I guess the difficulty would be if you haven't picked the right role models, then it wouldn't work. So, the teacher really needs to know the children before they do it. I don't think it's something you could do at the beginning of the year. You need to know the class dynamics and you need to know your children…[skipped]*

Both teacher participants viewed that knowing their children was the most important consideration when they were choosing a certain strategy to support students who are experiencing difficulty with their attention. I interpreted that they believed that every child is different and no strategy fits

all children. Therefore, they had to understand their own children before they knew which strategy worked well with which child.

Conversations when CT talked about the criteria in choosing a strategy:

> CT: *I would say it's very much..Different strategies would work with different children, they work with different classes. Every class is different and I think it's very much a case of...I could say, "If you're not sure, trial and error. Give it a go, see if it works. Sometimes it does, sometimes it doesn't", and if not it's that idea of being flexible, and being able to change and work with the children to make their learning journey, their learning experience as worthwhile as possible. Yes, I think so.*

Conversations when SC talked about the criteria in choosing a strategy:

> SC: *That all depends on the child, doesn't it? I'd have to go and sit with that child, see what their difficulties are. Maybe have a meeting with them find out with the class teacher and the child to find out what they actually are like and observe them from afar...[skipped]...Might speak to the parents as well to see what they're like at home. You tell them about what we do at home. Home and school need to be doing it together. I'd evaluate from there, to see what the best need for the child.*

4.2.b.ii   Main Theme 'Time'

'Time' was interpreted as an important main theme from the teacher participants' interview. Both CT and SC expressed their concerns on the time factor, especially when they talked about the limitations of or the difficulties they had with the intervention strategies.

Conversations when CT talked about Peer Support:

CT: Errm I think the strategy is absolutely fine I just feel that…they
    may be needed a bit more time…and more practice before it's
    actually implemented…[skipped]

……

CT: The major limitation is…[skipped]…also if you don't have the
    opportunities of before, during and after the coaching sessions,
    if you don't have the physical time to spend with the children,
    that is a major problem.

Conversations when SC talked about implementing Whole Class Strategies:

R: Have you experienced any difficulties in implementing these
    various types of whole class strategies?

SC: Yes, because you can give the teachers the strategies, it doesn't
    mean they're going to do this…[skipped]

……

SC: I think the teachers probably want to do them but sometimes it's
    time. It's that time. If that child makes a completely
    different..they need lots of resources finding..our teachers will
    do if it helps.

R: Do you mean the time to prepare for the things or the time to
    learn how to do it?

SC: Time to prepare.

Although in most cases where the theme 'Time' appeared in the data set concerned about negative aspects such as limitations or difficulties, Time factor could be related with a positive. The following two extracts were put together from which I interpreted that when CT talked about the impact of Peer Support on himself was very minimal, the theme 'Time' was involved.

Conversations when CT talked the peer supporters:

R: Just now you said that you reminded the peer supporters. Did
    you remind them in the classroom or in some events..

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> CT: Errm..It wasn't..as a group thing..it was very much..to do…and
> then it was so…it was very much in class. When I cut in it was
> very much in a class time. You know just a quick little reminder
> and then they moved on.

Conversations when CT talked about if he had any difficulties in implementing Peer Support:

> CT: Errm apart from what I've…in terms of what I've mentioned
> already in terms of the difficulty in terms of…micromanaging
> the peer supporters to do their own job but…that wasn't…not
> a major difficulty. But the…errm…I know..I know..I think the
> impact on myself was very minimal. Was very
> minimal..that's..that was obviously one of the positives about
> it..in terms of it should..it should have been…peer led rather
> than teacher led in that area.

I interpreted that, from the teachers' perspectives, time was a crucial factor in applying and in evaluating an intervention strategy. Requiring little teacher's time in implementation was a positive side of the intervention.

4.2.b.iii   Main Theme 'Peer Supporters' Role'

The main theme related solely with Peer Support was 'Peer Supporters' Role'. It emerged from both teacher participants' interview data. Three sub-themes were interpreted under this main theme.

4.2.b.iii.a   Sub-theme 'Personal Characteristics'

Both teacher participants emphasised that choosing the right persons to take up the peer supporters' role was important to the intervention. The sub-theme 'Personal Characteristics' was generated from codes such as 'right role models', 'strong individuals', 'works with confidence' and 'good interpersonal skills'.

Conversations when CT talked about inviting students to become peer supporters.

> CT: [skipped]…I involved a mixture of strong individuals who set good examples..set good examples to all those students had…[skipped]

> CT: P-Z, very strong...[skipped]…She..errm she is a very strong individual. She is able to…keep..keep keep him on his toes. P-Y is not. She's supporting Y. She's very much as who knows the rules, knows the expectations and is able to enforce that..or reinforce it. With P-W who's supporting W..err was a mixture of…she knows the rules..she..she is a good ambassador such… also works with confidence...[skipped]…

> ……

> CT: [skipped]… Need to know who can provide that peer support role and for it to be effective…errm…that means come those good interpersonal skills…[skipped]

This sub-theme was related to the sub-theme 'Their Children' under the main theme 'Knowledge', as illustrated by the following extract.

Conversations when CT talked about Peer Support:

> CT: I would say it's very much a case of...err…a need to have a good knowledge of their children. Needs to know who works well with each other. Need to know who can provide that peer support role and for it to be effective…errm…that means come those good interpersonal skills. And get across the importance of what you can do to make the children believe it to be important…and know the value…I think.

4.2.b.iii.b   Sub-theme 'Coaching'

The sub-theme 'Coaching' was interpreted as another essential element perceived by the teacher participants in the implementation of Peer Support. It was evident in both CT's and SC's data set. However, the two

teacher participants had different experience around this theme. SC felt that the intervention preparation process (the Peer Support Session) she experienced was a positive step to coach the peer supporters so that they would take up their roles better. Data from CT's interview showed that he viewed the coaching provided before and during intervention was not sufficient and that had made the peer supporters not take up their roles well.

Conversations when SC talked about the Peer Support session.

SC: [skipped]…giving children that time and explanation is also going to help.

……

SC: [skipped]…when you're in class as a teacher and you're trying to guess, it's so easy to just say, "Can you do this?". You might not explain why you want them to do it, or how it's going to help, or give them the praise. Whereas if you take time out, and sit with some of them and say, "I want you to do this because dadada." It would really appreciate everyone. Showing them how you want them to do it as well, and giving them examples. They will do it better. They'll feel better about doing it because there's a purpose…[skipped]

R: [skipped]…Is there anything that you think that the session is not really helpful or anything that would make that session even more helpful?

SC: No. It was quite interactive. The children were all given time to speak. That'll be the main thing that everyone's given time to speak…[skipped]

Conversations when CT talked about the Peer Support session:

CT: [skipped]…I think it could have been more helpful. It could be refined a little bit in terms of the explanations maybe..possibly..maybe a scenario for them to see..to see in practice I think may be a scaffolding in that sense to show them how it could be used.

> *R:* *Do mean that err..more..more practical examples?*
>
> *CT: Yeh. I think so more practical examples.*

Conversations when CT talked about implementation process:

> *R:* *Do you mean that the peer supporters did not take their roles to remind the students?*
>
> *CT: Yes, I would..I would say sometimes they did but it was..it was rare. I would say I had to remind the peer supporters of their roles…[skipped]*

Conversations when CT talked about his advice to make the strategy more effective:

> *CT: [skipped]…I think very much it's supporting them as you go through…for example have a session begin it...gives it a week and then come back together. What..how do you think it went? What could be improved? It's..it's that reflection time...as well.*

Coaching process involves both affective and practical aspects. My interpretation was that while SC's views had put emphasis on building the peer supporters' motivation to take up their roles, CT's concerns were more on the practical guidance given to the peer supporters so that they know how to take up the roles effectively. Besides, CT's interview data suggested that a continuous coaching support provided to the peer supporters was thought to be important for the effective implementation of the Peer Support.

This sub-theme was related to the main theme 'Time'. Both CT's and SC's interview data indicated such relationship - time for coaching, as illustrated by the following extract.

Conversations when CT talked about the limitation of the strategy:

> *CT: I think it's just that in terms of the time..that teachers have had outside the class..classroom for the coaching…or just to speak to the children about the activity. I would say that is the major*

limitation. Errm……yeah I would say everything is fine but that
time is the major limitation.

4.2.b.iii.c Sub-theme 'Expectations'

The sub-theme 'Expectations' was interpreted from CT's interview data. I generated this sub-theme when I was interpreting the discrepancies found in the data around the effectiveness of the strategy perceived by CT. In some parts of the data set, codes such as 'improved', 'their attention was fine' and 'strategy is absolutely fine' were found indicating that the strategy was thought to be useful; but in some other parts of the data, codes such as 'low impact' and 'wasn't really effective' were also found. When I put these data together to read again and again, the sub-theme 'Expectation' emerged that provides an explanation of the apparent inconsistency. This sub-theme is illustrated in the following extracts.

> *Conversations when CT talked about the implementation process ('P-X' represented X's peer supporter):*
>
> R: *[skipped]…what do you think about their attention in class durng that period of time?*
>
> CT: *[skipped] I'd say that…their attention was fine but I found that I would step in to remind them more than the actual peer supporters. [skipped] P-Z was..she was ok. P-Y was ok. I think P-W didn't..didn't really support W at all. I think P-X was quite good. [skipped] but I'd say…if they were taken away, was the..was the….was there be much change in the impact? Possibly not. So I..so I think..I'd say the impact of the peer supporters was low. I'd say low impact.*
>
> ……
>
> R: *That means during that..those two weeks' time you sometimes had to remind the peer supporters to keep on performing their roles?*

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CT: Yes. I can't feel like..you can't admire like "You can do it" to everybody.

Conversations when CT talked about the usefulness of Peer Support:
CT: ...In theory they should remind themselves so...it should be..and then and then the peer support will be taken away. That's..that's..that's the long term goal really...The end goal is for them to have better coping strategies with their own self..self-regulation, isn't it really?

My interpretation was that CT had certain expectations towards the peer supporters and the strategy. Before the intervention started, CT expected the peer supporters would take their roles well. However, during the intervention he found that he had to remind the peer supporters to perform their roles. Such a coaching role was unexpected by him. He felt that the strategy Peer Support would not be effective without the coaching role from the teacher.

Moreover, when CT found the student participants lost attention in class, he took the role to give reminders to them as what he had done before. My interpretation was that CT did not expect he had to take that role or did not expect he had to take that role frequently. In the interview, CT was asked to compare the amount of reminders he gave to the student participants before and during the intervention period, his answer was "I'd probably say about the same". From the viewpoint of an experimental design, it is expected to keep all other factors unchanged so that the impact of the intervention can be tested. In theory, teacher's input should be regarded as one of the 'other factors', that should be unchanged. However, I interpreted from the CT's perspective that it was expected that the strategy and the peer supporters would work well and the student participants would develop an ability to self-

regulate and remind themselves. That meant, I interpreted that CT expected he would not need to keep on reminding the student participants frequently during the intervention period. He expected that the improvement in the student participant's attention would continue if the peer supporters were taken away. However, he did not think that would happen. All these discrepancies between his expectations and the reality made CT view that the strategy was not really effective.

4.2.b.iv   Main Theme 'Not Really Effective'

As reported above, I interpreted that the strategy was thought to have led to some improvement in the student participants' attention behaviour but its effectiveness was not so high as expected by the CT. I used the term 'Not Really Effective' as a main theme to reflect the CT's perspective on the effectiveness of Peer Support. In SC's interview data, no data was obtained on the impact of the strategy.

> *Conversations when CT talked about the implementation process:*
> CT: *[skipped]...I'd say the impact of the peer supporters was low.*
> *I'd say low impact.*
> R: *You mean the impact of the Peer Support strategy?*
> CT: *Yes, yes. That's..that's the strategy that you gave them. I think*
> *the impact was low because of a mixture of confidence…a*
> *mixture of practice…and a mixture of forgetfulness.*

4.2.b.v   Main Theme 'Other Benefits'

This theme was evident, especially in SC's data set. Codes such as 'growing independence', 'life skills' and 'build their confidence' were used to generate this main theme 'Other Benefits'. I interpreted that both teacher participants viewed that Peer Support would bring about benefits other than

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improving students' attention in class. Both the students in need and the student who offered support enjoyed those benefits.

> *Conversations when CT talked about how Peer Support was useful:*
>> *CT: Errm I would say it's useful in terms of taking…in terms of taking some ownership of…from..of myself…on to the children that help for their…their growing independence…and their communication skills…errm I think it helps obviously the children who are trying to improve their frustration…There're definite positives for the peer supporter as well as that child who is struggling with attention…*

> *Conversations when SC talked about Peer Support:*
>> *R: …What do you think about this type of strategy?*
>> *SC: I like it. I always think where we can get the children to do things, or help the children build their knowledge, or just confidence. That's why we want is life skills.*
>>
>> *……*
>>
>> *SC: It helps the children that are in need [skipped]. Then the children that are helping, it builds their confidence as well, it gives them that role will help, maybe they are more now particular and it gives them skills as well, which is what we want. [skipped] especially now they are in Year five and they're going to go to high school. This is the time now why we need to talk, give them those experiences too.*

4.2.b.vi   Main Theme 'Interactive Teaching'

This theme was interpreted from the Class Teacher's interview data around Whole Class Strategies. The term 'Interactive Teaching' did not appear in any of the initial codes. I interpreted this theme from codes such as 'got them back', 'I do then you do', 'have a go', 'come back', 'show of thumbs', '"I couldn't understand"'. This theme emerged when I was listening again and again to the audio records, focusing the codes and at the same

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time imagining myself staying in the classroom. I felt that the Class Teacher was describing a classroom situation in which he and the students were working interactively during the lesson.

> *Conversations when CT talked about using Whole Class Strategies:*
>
> CT: *In terms of the non-verbal cues…[skipped]…if they were doing an independent task, it got them back together so we could then go through the next part. Also, the show of the traffic light system as such with the show of thumbs. Up if they understood. In the middle, not really. Then down with thumbs if they didn't, "I couldn't understand". That was useful to show that the children were..firstly, whether they understand the task. Also, to show that they were actually listening to the actual task and that was probably the greatest focus there…[skipped]*
>
> *……*
>
> CT: *Also, at times breaking down the activities into smaller chunks, so "I do then you do". I would say that that was definitely in terms of the amounts of the reduced teacher talk and the children being able to small..those activities was definitely improved after our intervention…[skipped]*
>
> *……*
>
> CT: *…[skipped]I've continued to really hone my..the amount of teaching time..teacher's speaking time...I really try to reduce that even further now so they can have a go and come back…[skipped]*

4.2.b.vii Main Theme 'Positive Outcomes'

The main theme 'Positive Outcomes' was generated from CT's interview data around the outcomes of Whole Class Strategies. It was interpreted not just from codes that reflect the effectiveness of the strategy but also from other codes such as 'feel confident' that reflects CT's positive

emotions and 'we're going to need to use them' that reflects CT's feeling of wanting to use them.

> *Conversations when CT talked about using Whole Class Strategies:*
>
> > CT: *…[skipped]I felt that had the greatest impact…[skipped]*
> >
> > *……*
> >
> > R: *What was your experience of using these strategies? How did you feel about them?*
> >
> > CT: *I feel confident. I feel that I will continue to use them after the project has finished…[skipped]…I think everything that we've implemented has had a positive impact on reducing the..no, improving the attention of all the children in the class. Now we're going to need to use them.*
> >
> > *……*
> >
> > R: *What do you think about those four children's attention in class?*
> >
> > CT: *I would say that all of their attention's improved…[skipped]*

Chapter 5. DISCUSSION

5.1 Interpretations of the Findings

5.1.a Peer Support

5.1.a.i   Effective in Increasing Time-on-task Rates

The analysis of quantitative data obtained from systematic observation revealed that Peer Support was effective in helping the students participants to stay on-task. The time-on-task rates of all student participants were raised when Peer Support was implemented and dropped when it was withdrawn. It suggested that the changes in the student participants' time-on-task rates across Phases I to III were brought about by the implementation of Peer Support. Effect size measurements indicated a strong effectiveness of Peer Support to all student participants.

Analysis of the types of classroom activity indicated that fluctuation in the activity pattern across different phases of the intervention period was not very great and some aspects of the changes were favourable to on-task behaviour while changes in other aspects were favourable to off-task behaviour. There was insufficient information to conclude that the impacts of Peer Support found in systematic observation had been confounded by the fluctuation in classroom activity pattern. That meant the analysis results that Peer Support had a high effectiveness in improving attention behaviour could still hold.

The analysis of results drawn from systematic observation were consistent with the quantitative and qualitative data obtained from the

interviews with the four student participants. All student participants gave a very high rating on the helpfulness of receiving friendly reminders from their peers in supporting their attention in class. Qualitative analysis of the interview data generated a theme 'Positive Outcomes' which was shared by all student participants. It once again suggested that Peer Support was helpful to the student participants' attention in class and had brought about a very positive experience for them.

Although the Class Teacher, who was the key teacher participant in the study, also reported that some improvement in the student participants' attention was observed after the intervention, interpretation of the qualitative data suggested that Peer Support was perceived to be 'not really effective' by the Class Teacher. Thematic analysis further showed that the Class Teacher's expectation might be a factor leading to that perceived effectiveness. The theme 'Expectation' was interpreted from Class Teacher's interview data. Analysis suggested that the Class Teacher expected that when the intervention strategy was implemented, the peer supporters would take their roles well; he expected that he would not need to remind the student participants frequently to stay focused in class as he did before intervention; and he expected the student participants would keep attentive in class after the peer support was taken away. When the actual situations differed from the expectation, a perception of the strategy Peer Support being 'not really effective' was formed.

The Class Teacher's perception on the impacts of Peer Support after the strategy had been withdrawn in fact matched with the systematic observation results. All student participants' attention performance dropped

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when Peer Support was removed. Although all student participants' attention performance was on average better than that before the implementation of Peer Support, they did not maintain at the same high level of attention without the peer supporters' involvement. It leads to an issue of the definition of intervention effectiveness. Normally, the effectiveness of an intervention strategy is defined as the improvement in performance when it is in place (comparison between Phases I and II in the study). Thus, Peer Support was regarded to be effective. However, if the effectiveness is defined as the improvement in performance after a once-implemented intervention has been withdrawn (comparison between Phases I and III in the study), then Peer Support was not so effective. Adopting either definition would be an issue of one's expectation.

5.1.a.ii   Contributing Factors from Student Participants' Perspectives

Awareness, goal, peer pressure, reinforcement and memory were interpreted as the factors that contributed to the positive outcomes of using Peer Support. Before the research project, most of the student participants were not aware of their inattentive behaviour in the class until they received their teacher's signals such as staring at them or telling them off. The Peer Support Session helped them to be more aware of their attention conditions in class and the specific behaviour that they were expected to perform. The Peer Support Session also helped some of the student participants to determine that they wanted to improve their attention and/or to work collaboratively with their peers. Such new goals gave them a direction for their behaviour change. The student participants' awareness was further enhanced during the actual intervention process. When they lost attention in

class, their peer supporters presented the cards to them as friendly reminders. That form of friendly reminder was jointly decided by the student participants and their peer supporters, and the cards were jointly produced by them. The visual stimuli the student participants received from the cards helped them to be aware of their attention conditions at that moment of time. Such visual stimuli also reminded the student participants of their goals, that included becoming an engineer (career goal), avoiding troubles, and playing outside. The increase in awareness and revisiting their goals built a platform for the student participants' behaviour change.

All student participants experienced peer pressure during the intervention process. When they were off-task and received visual reminders from their peers, all student participants did not feel easy at those moments. They felt surprised for realizing that they were observed by their peers, felt ashamed for being inattentive in class, felt sorry for needing their peers to spend time supporting them, or felt annoyed that their peer supporters would not remove the cards out of their sight until they paid attention back to the learning tasks. All student participants had unpleasant feelings when the peer supporters took actions in response to their inattention behaviour. On the other hand, no negative emotions or behaviour from the student participants against their peer supporters were expressed by the student participants, reported by the teacher participants or observed by me in the observation days. I think it was because the reminders were in general given in a friendly manner. The action of presenting the cards was relatively unobtrusive. The student participants had already known and accepted that their peer supporters would take those actions when they lost attention. They

had a say in deciding the form of friendly reminder and the cards (the visual reminders) were produced by themselves with their peers. I think all these factors had made the student participants less likely to direct their unpleasant feelings towards their peers. The peer supporters' actions put pressure on the student participants, yet the student participants found it hard to reject the pressure by blaming their peers. The student participants' choice was to concentrate in class, or else they would keep experiencing those unpleasant feelings as the cards would still be in front of them and their peers would still be sitting next to them. The peer pressure experienced by the student participants played a crucial and positive role in supporting them to change their off-task behaviour.

As the student participants displayed more attentive behaviour, their improvement in attention and school work brought about positive consequences which in return reinforced their attentive behaviour. The forms of reinforcement included being praised by the teacher, being praised by parents, making parents feel proud, receiving tangible rewards from parents, getting more tokens under the reward system in school/class, and having less troubles. Another important form of reinforcement interpreted from all student participants' interview data was the positive emotions they experienced after they had made improvements. They developed a feeling of "being good" and they "feel like it".

The experience that the student participants gained during the process, from the Peer Support Session to the moments they received supports from peers, provided inputs to their memory and helped them remember to stay focused and not to do the things they did before when they

were off-task. The change in memory contributed to their improvement in attentive behaviour.

The above themes generated from the student participants' perspectives echo with the psychological constructs that many research studies have found to be important components in understanding ADHD. The theme 'Awareness' relates to the construct self-awareness which is a component of having self-regulation (Barkley, 2011). A rise in awareness would bring about better self-regulated behaviour. Goal is an important construct in the studies on attention. If we integrate the concepts 'active attention' (James, 1890), 'top-down attention' (Eysenck & Keane, 2013), 'selectivity/selection' (Posner & Boies, 1971; Parasuraman, 2000), 'control' (Parasuraman, 2000) and the capacity theory (Kahneman, 1973), attention behaviour can be explained as the process of actively making cognitive efforts to allocate one's cognitive capacity on the stimuli he/she chooses to attend so as to achieve his/her goal. Students who have impairments or immature development in executive function may struggle with organising and prioritising work (Brown, 2013). When an external agent helps them to set, strengthen or revisit their goals that would be achieved through having more attentive behaviour, the students would display more goal-directed on-task behaviour. Memory and Reinforcement are constructs that relate closely with self-regulation and executive function (Douglas in Teeter, 1998; Barkley, 2011, 2015). Students with self-regulation deficits or immaturely developed executive function are more likely to have difficulties with memory, motivation (Barkley, 2011; Brown, 2013) and reinforcement (Douglas & Parry, 1983).

Supporting them with their memory and/or providing them with stronger reinforcement would help those students to elicit more on-task behaviour.

The construct peer pressure is commonly found in the literature. Peer pressure is not necessarily a bad thing. Positive peer pressure is reported in studies on peer monitored interventions on children with disruptive behaviour (Smith & Fowler, 1984; Davies & Witte, 2000). Given that the intervention is not implemented in a coercive or punitive way, peers can act as external agents to exert a certain degree of pressure on the targeted students to help them change their behaviour in a positive way.

With the above-mentioned contributing factors, the intervention strategy Peer Support brought about positive outcomes that include displaying more on-task behaviour and experiencing more positive emotions.

5.1.a.iii   Carryover Effect

Although the time-on-task rates of all student participants dropped after Peer Support had been withdrawn, analysis of results indicate that an increase in the mean time-on-task rates was found in all student participants when Phase I was compared with Phase III. The increase was 24.8%, 0.6%, 14.5% and 1.4% respectively. It suggested that there existed a certain extent of carryover effect of Peer Support.

The qualitative data obtained from student participants' interviews was consistent with the quantitative data. The theme Carryover was interpreted and two sources of carryover effect were suggested. The first one was not a typical carryover factor. It came from the continuous support from two of the peer supporters in Phase III. That meant the peer supporters had voluntarily

provided some sort of support even though they had been asked to stop doing that and their cards (the visual reminders) had been given to me. Although these two peer supporters' action was not expected in the research, it would be a positive indicator suggesting that they wanted so much to offer help to their peers.

A typical carryover effect was suggested in the data which was that the results extended from the positive outcomes they experienced during the intervention period. The positive outcomes did not just include the improvement in attention but also having positive emotions such as a feeling of "being good" and "feel like it". It broke the previous vicious cycle of being inattentive and getting into troubles. The positive outcomes gained in Phase II acted as a reinforcer motivating them to continue having on-task behaviour in Phase III. Also, the increase in awareness and improvement in memory that some of the student participants experienced in the Peer Support Session and during the intervention period had lasted to the end of Phase III. These factors might have helped the student participants to improve their attention performance even when the support from their peers were withdrawn/reduced, although not to the same level.

Some people may hold a view that providing direct training to students would bring about changes in their capability which is more long lasting while modifying environmental factors to accommodate the students' needs would be effective only when the accommodation is offered. However, this study showed that some student participants were able to show improved attention to some extent even when their needs were no longer accommodated by the peer supporters. The findings suggested that even though the students did

not receive any direct training to change their executive function skills or attention skills, when there were changes in the environmental factors such as having friendly visual reminders from peers, the students who are experiencing difficulty with their attention would gain new experience such as stronger awareness. The new experience may help enhance their development of executive function.

5.1.a.iv Implementation Considerations from Teacher Participants' Perspectives

From the teacher participants' perspective, the term 'Peer Support' was nothing new to them. However, they were not aware that this type of intervention could be used to improve students' attention in class. Awareness was the first step for them to implement the intervention.

'Understanding their children' was another important component of having the knowledge for intervention implementation. Understanding 'their children' does not mean understanding all children nor understanding a typical child in the population but understanding their individual children – every individual child in their class/school, as every child is unique. The teachers believed that they had to understand their own children before they knew which strategy would work well with which child and also which child works well with which child. However, the teachers were concerned if they had enough time to obtain that knowledge. The relationship between the themes 'Their Children' and 'Time' was illustrated in the thematic network Figure 11.

Teachers thought that whether the peer supporters were playing their roles was crucial to the strategy Peer Support. This view is obviously sensible as the peer supporters were the key change agent in the intervention process. Teachers believed that selecting suitable students who had personal characteristics such as having a strong character and confidence would fit the peer supporters' roles well. Finding students with the desirable personal characteristics was actually related with whether the teachers have good knowledge of their children, which in turn was related with the time factor. Such relationships are illustrated in Figure 11. In addition to having desirable personal characteristics in the peer supporters, teachers thought that providing coaching was important to help the peer supporters take up their roles well. From the teachers' perspectives, coaching did not just mean providing training to deliver practical tasks but also motivating them to play their roles actively. Teachers viewed coaching as important, yet they felt that with the time constraints continuous coaching was not always possible (illustrated in Figure 11).

The Class Teacher observed improvement in the student participants' attention behaviour and described their attention as "fine" during the intervention period. However, his evaluation of the strategy Peer Support was "not really effective". Interpretation of the interview data suggested that the evaluation outcome was modulated by the Class Teacher's expectations. The Class Teacher expected that the peer supporters would play their roles actively. He did not expect that he needed to remind the peer supporters of their roles nor to continue reminding the student participants himself. He also had expectations on the continual impact of the strategy after it had been

withdrawn. However, the situation he experienced did not match with his expectations. Therefore, he perceived the strategy Peer Support as "not really effective".

The teachers' evaluation of the intervention outcome was not just based on the change in attention behaviour of the student participants. They also considered other benefits such as growing independence and better life skills of the students. They believed that the strategy Peer Support would bring about these benefits to both the student participants and the peer supporters. Such a view matched with some of the student participants' talk around developing friendships such as W's wanting to be kind to his peer supporter.

Moreover, the Class Teacher evaluated Peer Support as having "positives" as he experienced that the impact of the strategy on himself was "very minimal" as the strategy did not require a large amount of time from him. Time factor emerged again as an important concern of the teacher.

5.1.b Whole Class Strategies

5.1.b.i   Effective in Increasing Time-on-task Rates

In the study, three forms of Whole Class Strategies were implemented as the interventions, that include Teacher Using Sign Language, Students Using Sign Language, and breaking down of learning tasks so that each time the teacher talked the duration was reduced. Analysis of systematic observation data showed that Whole Class Strategies were effective in supporting students' attention in class. All student participants' time-on-task rates increased during intervention and the effect sizes were great.

The statistical results based on systematic observation were consistent with the results obtained from interviews. The average scores rated by the four student participants on Teacher Using Sign Language and Students Using Sign Language were 3.5 out of 5 and 4.25 out of 5 respectively, where a higher value represented higher effectiveness. The theme Positive Outcomes emerged in the qualitative analysis of the teacher participants' interview data. It suggested that the effectiveness of Whole Class Strategies was acknowledged by both type of participants in the study though there is some ambiguity as to what changes took place.

5.1.b.ii   Association between Classroom Activity and Attention Behaviour

Statistical analysis showed a significant association between type of classroom activity and attention behaviour in Phase I (baseline phase). It was found that all student participants were more likely to have on-task behaviour when they were working in pairs/groups with concrete resource support. Three of them were more likely to display off-task behaviour when the teacher was talking to the whole class; two of them were more likely to display off-task behaviour when the teacher was using a question and answer method of teaching to the whole class.

Although an association between two variables reported by Chi-square test does not necessarily represent a causal relationship, in the study, we can reasonably argue that the type of classroom activity was an independent variable and the student participants' on-task/off-task behaviour was a dependent variable. As a significant association between these two variables was found, it implied that the students' attention behaviour had changed due to a change in the type of classroom activity.

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The analysis of results is consistent with psychological theories, as explained in Section 2.3.c. Working in pairs/groups is a learning approach that have the characteristics of cooperative learning. It is more interactive and would promote students' engagement in the learning process (Muijs & Reynolds, 2001; Croll & Hastings, 1996). Hands-on tasks that involve concrete resources provide multi-sensory stimuli to the students and would help increase the chance of student attention (Dehn, 2014). Therefore, when students are asked to work in pairs/groups with concrete resource support, it is more likely that they would keep on attending to the learning tasks.

Although the study did not alter the learning approach or the nature of learning tasks across intervention phases to test their effectiveness, the test for associations in the study indirectly suggested that these forms of Whole Class Strategies were effective in increasing students' on-task behaviour.

It is worth noting that certain types of special classroom activities were found in the observation data. The use of audio-video aids on Day 11 might be related to the obvious increase in the time-on-task rates observed in all student participants that day. The arrangement of voluntary small group learning observed on Day 13 and Day 14 that might also have affected the student participants' attention behaviour. Exploration of these special classroom activities' impacts on students' attention would be an interesting study.

5.1.b.iii   Contributing Factors from Student Participants' Perspectives

Only one theme 'Solving Hard Problems' was generated from the student participants' interview data regarding how Whole Class Strategies

helped them with their attention in class. The student participants viewed the strategies helpful to their attention as they were supported when tackling with hard problems. This finding is consistent with motivation theory. The experience of failure tends to hamper a person's self-esteem and reduce his/her motivation to make efforts. On the contrary, when a person develops a sense of self-efficacy and believes that he/she is able to accomplish tasks, he/she will tend to be more motivated to put in a greater effort to achieve their goals (Franken, 2002). Supporting them with solving hard problems might also help them reduce the cognitive load required in the process and allowed them to maintain their attention on the learning tasks (Dehn, 2014).

5.1.b.iv Implementation Considerations from Teacher Participants' Perspectives

The teachers thought that the knowledge they gained or revisited in the Professional Development Sessions were important in implementing Whole Class Strategies. Understanding the psychological theories provided them with a stronger background knowledge to know how to support their children. Although the theories and strategies were not totally new to them, the teachers might have forgotten some of them and might not have a chance to have all strategies pulled together to get a comprehensive picture. Therefore, the Class Teacher thought the Sessions helped him to become more aware of the possible barriers to attention and the strategies he possibly lacked. The theories themselves and awareness of how these can be put into practice became useful from the teachers' perspective. As for Peer Support, understanding their children was perceived to be very important in implementing Whole Class Strategies. The teachers believed

that they had to understand their children before they knew which specific forms of Whole Class Strategies would work well with which class. A time factor appeared again around Whole Class Strategies. It was a concern of the teachers, especially for those strategies that needed long preparation time.

Interpretation of the Class Teacher's interview data suggested that classroom teaching became more interactive after the three forms of Whole Class Strategies were applied. The teacher talked for a while and then the students worked for a while; the teacher gave a cueing signal to the students and the students indicated their choices through another set of cueing signals. These kind of interactions between the teacher and the whole class of students kept the momentum and let the students more engaged with their learning tasks. Interaction between teacher and students is an important aspect of effective direct teaching (Muijs & Reynolds, 2001). The forms of Whole Class Strategies chosen by the Class Teacher in the study enhanced teacher-student interaction and thus resulted in more on-task behaviour under teacher-led activities.

Theoretically, using a question and answer method is a way to increase teacher-student interaction. However, most often when this method is used, only one student gets the chance to interact directly with the teacher. If a long lesson time is spent in using this method, the engagement of individual students may be even lower than that when they are asked to do individual work, especially to those students who do not know the correct answers and cannot participate in the question-answer interaction. That might be a possible explanation of the observed phenomenon that some

student participants in the study tended to have off-task behaviour when the teacher was using a question and answer method of teaching to the whole class.

The Class Teacher experienced positive outcomes in using Whole Class Strategies. Such outcomes include observing improvement in the students' attention and confidence. The positive outcomes and emotions experienced by the Class Teacher motivated him to determine continue with using the strategies in the future.

5.2 Implications of the Study

5.2.a Both Peer Support and Whole Class Strategies Are Effective to Be Used in an Inclusive Classroom

Both Peer Support and Whole Class Strategies were found to be very effective in increasing on-task behaviour of students who struggle with their attention from systematic observation. A significant increase in time-on-task rate was observed during intervention for each student participant, whether or not the baseline measure was low. For instance, student participant X's mean time-on-task rate in Phase I was 73.3%. Although he also struggled with attention in class (on average, he was off-task in more than 25% of the learning-related lesson time), such a baseline measure was considered to be quite high because it would be difficult to demonstrate a substantial increase in during intervention. Significant changes were still observed when the interventions were used with student participant X. For student participant Y

who had a low baseline measure (mean time-on-task rate in Phase I was of 37.7%), larger changes were observed during intervention.

Exploration of the student participants' experience revealed that changes in elements related with executive function were reported during intervention which might serve as contributory factors to the changes in their behaviour. Positive peer pressure was reported that helped the student participants to modify their behaviour in an unobtrusive way. The findings echo the literature on the role played by executive function on the difficulties found in children with ADHD.

The two types of intervention investigated in the study share a characteristic of promoting inclusiveness in supporting students who struggle with attention. The student participants who struggle with attention were educated in a mainstream classroom while they were receiving intervention from their peers and teachers. The use of Peer Support is believed to benefit both the student participants and the peer supporters in terms of raising their social skills and building closer relationships. The use of Whole Class Strategies is believed to benefit the whole class's learning engagement and attention. Applying these two types of intervention does not just improve the target students' attention behaviour, but in turn, are expected to also bring about a more all-rounded development of the children in the class.

5.2.b From External to Internal; From Teacher-regulation to Peer-regulation then Self-regulation

Dawson and Guare (2014) contend that, to help children develop their executive function skills, adults have to begin the process with changing the

things outside the children rather than quickly moving on to strategies that require those children to change. The children would then internalise the skills gradually. Dawson and Guare describe such situation as moving "from the external to the internal" (p. 430, 2014).

In supporting students who struggle with attention, both Peer Support and Whole Class Strategies instigated changes outside the students. For students who had not yet developed their executive function and self-regulation skills well, a transition period in which some sort of external support was provided might be helpful for them to maintain attention in class.

Thematic analysis of the data suggested that a certain extent of changes within the student participants, such as changes in their awareness and memory, might have occurred after they had gained new experiences from the intervention Peer Support. A small extent of carryover effects in Peer Support was suggested. The student participants' development of executive function skills might have been enhanced in the process. Peer supporters in the study may have acted as external agents to support the student participants during the transition from teacher-regulation to self-regulation.

As some of the teachers' role was taken up by the peer supporters, the teachers' overall classroom demands can be reduced. This would enable more room to focus on their classroom teaching role (Davies & Witte, 2000), though in the study the Class Teacher did not experience that the peer supporters were able to take up the roles independently. Also, as the peer supporters took up some roles from the teacher, they would have more chances to learn communication skills and develop confidence which were interpreted as the theme 'Other Benefits' from the teachers' perspectives.

5.2.c Using Intervention Strategies that Do Not Require Much Teachers' Time

Exploration of teacher participants' perspective indicated knowledge (including an awareness of the strategies, psychological theories and understanding of their individual children) and the time factor were the two crucial factors in the intervention implementation, while acquiring knowledge was perceived as sometimes limited by the time factor.

Concerns on the time factor were salient in the teacher participants' interview data. It is consistent with other studies that capture teachers' views in supporting students with ADHD. 'Not enough time' is a major reason for the teachers for not using strategies that have been identified to be most effective (Walker, 2013). Developing effective strategies that teachers can use without spending much of their time would have a higher chance of continuous use in the future.

5.2.d Students and Teachers All Need Positive Experience to Keep Going

The study revealed that the positive outcomes and emotions experienced by the student participants were sources of motivation that made the students maintain attention after Peer Support was removed. Similarly, the Class Teacher who had experienced positive outcomes and emotions in using Whole Class Strategies wanted very much to keep using those strategies in the future. Both students and teachers need positive experience and reinforcements to motivate them keep paying efforts to achieve their goals. To the struggling students and to their teachers,

providing them with new experiences enabling a taste of success and to break through the vicious cycle would be important for their future changes.

5.3 Discussion on the Research Method and Process

Many single case researchers suggest including a withdrawal phase because if the results show an increase in the desirable outcome at intervention phase and then a drop in the outcome in the second baseline phase, then it would be more convincing to conclude that the changes in outcome are brought about by the intervention (Barlow & Hersen, 1984). However, this assumes implicitly that the intervention would have an impact only on the days when it is implemented. If an intervention is effective enough to bring about long-lasting changes in the participants, the outcome measured at the second baseline phase would be roughly the same as that at the intervention phase. In that case, single case research using a withdrawal design may have to conclude that the impact of the intervention is uncertain. As pointed out by Barlow & Hersen (1984), carryover effect in the second baseline is found in many behavioural studies and the presence of carryover effect is a major shortcoming of single case experimental research. To a practitioner, a carryover effect that appears in intervention research is a good indicator; but to a researcher, it is problematic.

In this study, some carryover effect of Peer Support might have appeared. The presence of carryover effect was suggested based on the single case experimental design data and the student participants' interview data. I think using a triangulation technique to understand the process of intervention is important to single case studies, especially when a carryover

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effect may be present. If the desirable outcomes increase in the intervention phase and maintain in second baseline phase, researchers would need more information to distinguish whether carryover effect exists or the observed changes in the intervention phase are in fact not induced by the intervention.

The possible presence of carryover effect has made me reflect on the definition of 'intervention effectiveness' which is embedded implicitly in the 'A-B-A' withdrawal design. It seems that an intervention is thought to be effective when it has impacts in the intervention phase, even if its impacts disappear once the intervention ceases. On other hand, the process of interpreting the Class Teacher's interview data has made me more aware that different individuals may be holding a different definition of 'intervention effectiveness'. To the Class Teacher, an intervention is regarded as 'really effective' when it is able to bring about sustainable changes after the intervention has ceased. Further discussions and explorations around the meaning of 'intervention effectiveness' among Educational Psychologists, teachers, researchers, service users (children and young people) and their parents might give meaningful insights.

Chapter 6.   LIMITATIONS

A limitation of the study is the lack of data to check its inter-observer reliability. There was only one observer in the current study and thus no inter-observer agreement coefficient was obtained. Although the lack of inter-observer agreement coefficient in the study would not bring about a fatal problem coming from inconsistency across different observers, the study was not able to show a high reliability by reporting its inter-observer agreement coefficient. However, reliability was ensured through triangulation of different sources of data, different methods of data collection and data analysis as explained in Section 3.7. The study can be improved by involving one or more well-trained observers to take observational records. Then, inter-observer agreement coefficient can be computed and the inter-observer reliability checked.

Another limitation of the study is that there might be expectancy effects in the study, from both the observer's and the participants' sides. I, the observer as well as the researcher of the study might have tended to code in a more positive way during the intervention phases, expecting to see intervention effects. On the other hand, at the interviews the student participants might tend to give positive responses on their attention performance as they perceived that an improvement in attention was expected. The teacher participants might also tend to give positive appraisal on the strategies they had implemented, especially for the Class Teacher's evaluation on Whole Class Strategies as he took the major role in the implementation process. One way to reduce observer-expectancy effect is to

arrange other people as observers who do not know the purpose of the study and do not know on which days an intervention is implemented. To reduce a participant-expectancy effect, one solution is to arrange another person who is new to the student and teacher participants to become the interviewer. I have appeared in the Peer Support Sessions and Professional Development Sessions and talked about supporting students to improve their attention. Student and teacher participants might tend to give more positive responses on their behaviour or intervention outcomes when they are interviewed by me. However, arranging another person to be the interviewer may have a risk of scarifying the quality of the interview data because the interviewer has to ask follow up questions based on the interviewees' answers. This arrangement is recommended only when the interviewer has been very well trained and fully understands the purpose of the research and the related psychological issues.

As the study had lasted for a long period of time, there might be potential issues with the observation data. Observer drift might occur, which refers to the situation when the observer becomes more and more familiar with the use of an observation schedule, he/she might change the way he/she interprets the category definitions (Robson, 2002). In addition, as the last observation day was more than a month after the first observation day, there would be a higher chance of changes in the school/classroom environment over that period of time. If there existed drastic changes in environmental factors, the research results might be confounded.

Due to a tight schedule and cancellation of some observation days, only three to five days were observed in each phase. Not all phases were

long enough to demonstrate stability in all student participants. The baselines obtained in some student participants were not very stable. This is not very desirable for a single case experimental study (Johnston, 1972).

Student participants in the study were not diagnosed with ADHD but were struggling with attention in class. After considering the potential ethical issues, it was decided not to use psychometric assessment as one of the criteria in selecting participants. The selection was mainly based on the class teacher's appraisal and the students' self-appraisal. The trial observation before Phase I also served as a way for me to confirm all student participants met the target criteria for the study. However, there was no objective standard to indicate the degree of their inattentiveness as compared with other children in the population. To improve this, a psychometric assessment such as the Inattention Scale of Conners 3-Teacher could be used with the student participants before the project started. No matter what scores they obtained, all student participants were to receive support from their peers as described in the information sheet. However, if a participant's assessment scores indicate a normal attention level, the observation and interview data of that student would not be processed nor reported in the study.

The sample size of this single-case study is very small. Only four students and two teachers from one primary school participated in the study. The research findings including the results on the effectiveness of the two types of intervention and the interpretations of the student and teacher participants' perspectives cannot be generalised to the whole population. This is especially so for Whole Class Strategies because the choice of the specific strategies was made jointly by the Class Teacher and myself. The

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specific strategies chosen were more likely to be suitable to that teacher with those student participants. If these strategies were used by another teacher with another class, the effectiveness may vary.

The design of this study aimed at investigating the impacts of the two types of intervention one by one. However, carryover effects may have been present in Peer Support. It was not clear whether such carryover effects remained stable over Phases III and IV. If the carryover effects diminished in Phase IV, the actual effectiveness of Whole Class Strategies would be even greater than the results reported in the study. On the contrary, if the carryover effects strengthened as the student participants had accumulated more positive emotions, developed stronger awareness and memory over time, then the actual effectiveness of Whole Class Strategies would be lower than that reported. This study does not have further information to clarify the above issues.

The study does not investigate further the combined effects of the two types of intervention. The interaction between Peer Support and Whole Class Strategies is not certain at the moment. There might be synergistic effect or the impacts of the two interventions might cancel each other out. There may also be a ceiling effect on the effectiveness of the interventions on attention. That means even if using combined interventions is more effective than using just one strategy, the change in performance of the combined interventions may be smaller than the sum of changes in performance of individual strategy. The study does not provide any information in these regards.

There are many forms of specific strategies under the umbrella 'Whole Class Strategies'. The study did not test the specific strategies individually.

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The analysis only suggests that using Whole Class Strategies can be very effective in improving students' on-task behaviour, but no concrete information was provided on the effectiveness of each specific strategy.

The interview data obtained around Whole Class Strategies is not rich enough to produce qualitative analysis results with great depth and complexity. This is because of the interviews had to cover different specific strategies. The time spent on each specific strategy was not long enough and the depth of the interview was sacrificed. To improve this, more time should be allowed for each interview.

Chapter 7.   CONCLUSIONS

7.1   Significance of the Study

This study designed new ways to support students who are experiencing difficulty with their attention to enhance their on-task behaviour in an authentic mainstream classroom setting. Two types of intervention namely Peer Support and Whole Class Strategies were investigated. Quantitative and qualitative data showed that both types of intervention were very effective. Some carryover effect was suggested in the intervention Peer Support.

The strategy Peer Support was developed in the study that integrated the ideas of an attention training system, peer tutoring and peer monitoring which have been used by other researchers to support children with ADHD. A Peer Support Session was designed that facilitated the implementation of the intervention. Qualitative analysis of student participants' experience in the study provided fruitful knowledge to understand in what ways the strategies worked well to help struggling students improve their on-task behaviour. Four components, 'awareness', 'goal', 'reinforcement' and 'memory' that related to executive function and another component 'positive peer pressure' were found to be important contributing factors in the process. The mechanism of having carryover effects was explored in light of the above contributing factors. The findings provided insights on how to help students who are struggling with attention to break through the vicious cycle of being inattentive and to help them maintain a better level of self-regulation even when the intervention is withdrawn.

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The study summarised the various ways suggested in the literature that can be delivered in a whole class setting to support students who are experiencing difficulty with their attention. The collection of strategies under the term 'Whole Class Strategies', together with the two Professional Development Sessions designed in the study, provided frontline teachers with a comprehensive background knowledge on supporting children who are struggling with their attention. As revealed in the study, knowledge is one of the most important elements perceived by the teachers in implementing interventions, where 'knowledge' does not just mean theories, but also awareness of the theories/strategies in practice and the understanding of their individual children. Enhancing teachers' understanding of psychological theories and raising their awareness of possible strategies can facilitate the implementation of interventions with the students in need.

The study also utilised data collected on the type of classroom activity and students' on-task/off-task behaviour and found a significant association between the two variables. All student participants were more likely to have on-task behaviour when they were asked to work in pairs/groups with concrete resource support. It implied that varying teaching and learning approaches or learning tasks would help improve students' attention in class, which indirectly supported the notion of using Whole Class Strategies.

Thematic analysis on teacher participants' perspectives revealed that knowledge and time were crucial elements in implementing intervention strategies. The time factor was salient in the teachers' concerns in the intervention implementation process. It was mostly related to limitations or difficulties faced in the process. Not requiring considerable commitments in

time from teachers in implementing a strategy would be regarded as a positive aspect in their evaluation of the strategy.

Both Peer Support and Whole Class Strategies are easy to use and there are almost no financial costs incurred when using them. It is more possible for teachers to use them in the future. These two types of intervention can be used in mainstream classrooms. They promote inclusiveness in supporting students who struggle with attention. Apart from bringing about positive outcomes to the students who are experiencing difficulty with their attention, Peer Support might also be beneficial to the children who provide supports to their peers in terms of raising their social skills. Whole Class Strategies might also be beneficial to other children in the class, not just the target students, in raising their engagement and attention during lessons. Teachers might also benefit in the process in the sense that they might be more aware of the various possible strategies that help engage students in their learning. In applying Whole Class Strategies, teachers are in fact practicing effective teaching. Using Whole Class Strategies would help them have more chance to reflect on their own teaching process and gain more experience in improving their teaching effectiveness. That might benefit the teachers and the children in the long run.

Hinshaw (2018) discussed the ADHD controversy and proposed a multiple-level analysis in understanding ADHD in which genetic endowment, neurotransmission, brain pathways, acquired skills, family socialization, peer relationships, and educational and cultural factors are synthesized. The findings of the current study echo the literature on the role of executive function in ADHD. It suggested that brain functioning is important in

understanding children who are experiencing difficulty with their attention. On the other hand, the intervention strategies used in this study focused on using peer relationships, and psychosocial and educational forces to support children who struggle with attention in the classroom. As the strategies have been tested to be effective, I believe that adopting a multiple-level approach would be sensible in understanding and in supporting children who experience difficulty with attention.

7.2 Implications to Educational Psychologists

Interventions Peer Support and Whole Class Strategies that were developed based on research literature were tested to be effective in raising time-on-task rates for students who struggled with attention. Educational Psychologists (EPs) may consider recommending these intervention strategies to school teachers in supporting their students who are experiencing difficulty with their attention.

Study findings indicated that time was a salient factor in the intervention implementation process from the teacher participants' perspective. It is consistent with previous study that suggested 'not enough time' was a major reason for the teachers for not using strategies that have been identified to be most effective in supporting students with ADHD (Walker, 2013). Besides, thematic analysis of the teacher participants' views indicated that time factor was related with acquiring knowledge of their children, providing coaching to the peer supporters and adopting interactive teaching. Teachers' lack of time would probably be a crucial barrier to

implementation of evidence-based research and a barrier to EP's working effectively.

Both teacher participants of the study expressed that they had used peer support in terms of talk partners or scaffolding during the learning process. When they used Peer Support in the study to support children who are struggling with attention, both teacher participants viewed that the strategy would bring about 'other benefits' such as life skills and communication skills to the children in need and the children who offered support. My interpretation was that both teacher participants valued inclusiveness and whole person education. In general, their students might have some experiences in supporting each other and parents might be more willing/ready to let their children take up the peer supporters' role. The teachers' values and the school culture might also be factors, though not salient, that contributed to the implementation of the strategy Peer Support. For schools where inclusiveness and whole person education are not valued much, for example schools that emphasize competition and individual's academic attainment, EPs might find barriers in implementing strategy Peer Support.

Thematic analysis suggested that the teacher participants viewed knowledge as an important factor in providing intervention support to students and that talking through the possible pros and cons of the strategies with a professional had been very useful. When there is a gap between theory and practice, Educational Psychologists (EPs) can help with bridging it. As practitioners, EPs are working closely with school teachers and are in a better position to understand teachers' needs. EPs' input in presenting

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psychological theories in a way that teachers can comprehend easily and/or in suggesting research-based strategies in helping struggling students would be one of their major roles.

The British Psychological Society contends that EPs are trained to reduce educational disadvantage and to promote positive development through systematically applying psychological theory, and interventions are developed that "aim to promote autonomy, educational and social inclusion and wellbeing, and to empower and enable those in educational settings, thus minimising exclusion and inequality" (BPS, p.8, 2017). Qualitative analysis of the study showed that the student and teacher participants had experienced positive outcomes in using the interventions. Those positive experiences had made them feel good and/or confident. That might have driven some of the student participants to keep on having more on-task behaviour even the intervention Peer Support had been withdrawn and the Class Teacher continued to keep on using the Whole Class Strategies even after the research project had ended. When students and teachers feel empowered, they would be more likely to bring in continuous changes in the future.

Qualitative analysis of the student and teacher participants' views and experiences had brought about insights in understanding the intervention process. This research project on intervention did not just provide new experiences to the participants, but also new perspectives to me in understanding the students' and teachers' needs. Doing process research may help practitioners to learn through their work partners and to reflect on their own practices, enhancing our professionalism.

7.3   Directions for Future Research

The student participants in the study were not diagnosed with ADHD. The difficulty they were experiencing with their attention would probably not be at a very serious level. It is worthy to test the effectiveness of Peer Support and Whole Class Strategies with children diagnosed with ADHD. As many children with ADHD are found to have serious difficulties with peer relationships (Wehmeier et al., 2010), there may be a higher risk for them to have issues with their peers when Peer Support is implemented. On the other hand, using Peer Support would be a good opportunity for them to build relationship with their peers. If Peer Support works well with children with ADHD, it would not just help with the children's attention behaviour but also their social development.

In the study, Peer Support was implemented for two weeks and then carryover effect may have been present after the strategy had been withdrawn for two to three weeks. It would be interesting to know how the length of intervention period would affect the effectiveness of the strategy. Theoretically the longer time the support lasts, the greater change in factors such as reinforcement and memory would be resulted. However, it is uncertain if some other factors would emerge as the strategy has been used for a long time. Moreover, it is uncertain how long the carryover effect would last after the strategy has been totally withdrawn. Future studies around these questions are recommended.

The peer supporters were not regarded as participants in the study. Future studies that involve the peer supporters' perspectives would provide

a richer understanding of the dynamics among the student participants, peer supporters and teacher participants. That would give more insights in investigating the effectiveness of Peer Support and in suggesting ways to refine it.

The Class Teacher in the study viewed that Peer Support would have had greater impacts if more coaching had been provided to the peer supporters. Future studies may explore this variable in the effectiveness of Peer Support.

Whole Class Strategies were investigated as a whole in the study. The effectivenesses of individual forms of strategies were not explored. Now that Whole Class Strategies have been tested to be effective in improving attention behaviour of struggling students, it is advised that more effort should be made to test the effectiveness of the specific forms of the strategies. For example, the teaching and learning approach observed on Day 13 and Day 14 of the observation period (reported in Section 4.1.c.ii) might have impacts on the students' attention behaviour and is worth investigating.

The study measures on-task/off-task behaviour that includes behaviours of sustained attention and alternating attention. The study does not distinguish the type of attention in the measurement. Some researchers suggest that children with ADHD mainly have difficulties with sustained attention because whenever there is a new stimulus these children are able to shift their focus on it but are not able to maintain their attention to the original tasks (Alban-Metcalfe & Alban-Metcalfe, 2001). Future studies are

recommended to test the effectiveness of Peer Support and Whole Class

Strategies on tasks that require sustained attention.

REFERENCES

Ainscow, M. (1997). Towards inclusive schooling. *British Journal of Special Education*, *24*(1), 3-6.

American Psychological Association. (2010). Publication manual of the American Psychological Association (6th ed.). Washington, DC: American Psychological Association.

Alban-Metcalfe, J., & Alban-Metcalfe, J. (2001). *Managing Attention Deficit/Hyperactivity Disorder in the Inclusive Classroom: Practical Strategies for Teachers*. New York: Routledge.

Atkinson, R. C., & Shiffrin, R. M. (1968). Human memory: A proposed system and its control processes. Online. Available at https://pdfs.semanticscholar.org/5e32/b2242241de92d6f20fd315c2b ebc1f251cb7.pdf (accessed 15 July 2017)

Attride-Stirling, J. (2001). Thematic networks: an analytic tool for qualitative research. *Qualitative Research*, *1*(3), 385-405.

Bakeman, R., & Gottman, J.M. (1997) *Observing Interaction: An Introduction to Sequential Analysis* (2nd ed.). Cambridge: Cambridge University Press.

Barkley, R. A. (2011). *The important role of executive functioning and self-regulation in ADHD.* Online. Available at http://www.russellbarkley.org/factsheets/ADHD_EF_and_SR.pdf (accessed 11 February 2017)

Barkley, R. A. (Ed.). (2015). *Attention-deficit Hyperactivity Disorder: A Handbook for Diagnosis and Treatment* (4th ed.). NY: Guilford Publications.

Barlow, D. H., & Hersen, M. (1973). Single-case experimental designs: Uses in applied clinical research. *Archives of General Psychiatry*, *29*(3), 319-325.

Barlow, D. H., & Hersen, M. (1984). *Single Case Experimental Designs*. Pergamon Press.

Bartlett, R., Rowe, T. S., & Shattell, M. M. (2010). Perspectives of college students on their childhood ADHD. *The American Journal of Maternal Child Nursing*, *35*(4), 226-231.

Bergin, A. E., & Strupp, H. H. (1970). The directions in psychotherapy research. *Journal of Abnormal Psychology*, *76*(1), 13-26.

Biederman, J., Monuteaux, M. C., Doyle, A. E., Seidman, L. J., Wilens, T. E., Morgan, C. L., & Faraone, S. V. (2004). Impact of executive function deficits and attention-deficit/hyperactivity disorder (ADHD) on academic outcomes in children. *Journal of Consulting and Clinical Psychology*, *72*(5), 757.

Blatchford, P., Webster, R., & Russell, A. (2012). Challenging the role and deployment of teaching assistants in mainstream schools: The impact on schools. *Final Report on Findings from the Effective Deployment of Teaching Assistants (EDTA) Project.* Online. Available at http://maximisingtas.co.uk/assets/content/edtareport-2.pdf (accessed 8 January 2017).

Boyatzis, R. E. (1998). *Transforming Qualitative Information: Thematic Analysis and Code Development*. London: Sage.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77-101.

Brown, T. E. (2013). *A New Understanding of ADHD in Children and Adults: Executive Function Impairments*. East Sussex: Routledge.

Bryman, A. (2016). *Social Research Methods* (5th ed.). Oxford: Oxford University Press.

Chandler, C. (2011). *The Science of ADHD: A Guide for Parents and Professionals*. John Wiley & Sons.

Creswell, J. W. (2013). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (4th ed.). London: SAGE.

Creswell, J. W., & Clark, V. L. P. (2007). *Designing and Conducting Mixed Methods Research*. Thousand Oaks, CA: SAGE.

Croll, P. (1986). *Systematic Classroom Observation*. Basingstoke: Falmer.

Croll, P., & Hastings, N. (1996). *Effective Primary Teaching: Research-based Classroom Strategies*. London: David Fulton Publishers.

Davies, S., & Witte, R. (2000). Self-management and peer-monitoring within a group contingency to decrease uncontrolled verbalizations of children with attention-deficit/hyperactivity disorder. *Psychology in the Schools*, *37*(2), 135-147.

Dawson, P., & Guare, R. (2014). Interventions to promote executive development in children and adolescents. In S. Goldstein, & J. A. Naglieri (Eds.), *Handbook of Executive Functioning* (pp. 427-443). New York: Springer.

De Leeuw, E. (2008). Self-administered questionnaires and standardized interviews. In P. Alasuutari, L. Bickman & J. Brannen (Eds.), *The SAGE Handbook of Social Research Methods* (pp. 313-235)*.* Los Angeles: SAGE.

Dehn, M. J. (2014). Supporting and strengthening working memory in the classroom to enhance executive functioning. In S. Goldstein, & J. A. Naglieri (Eds.), *Handbook of Executive Functioning* (pp. 495-507). New York: Springer.

Deutsch, J. A., & Deutsch, D. (1963). Attention: Some theoretical considerations. *Psychological Review*, *70*(1), 80-90.

Douglas, V. I., & Parry, P. A. (1983). Effects of reward on delayed reaction time task performance of hyperactive children. *Journal of Abnormal Child Psychology*, *11*(2), 313-326.

DuPaul, G. J., & Stoner, G. (2014). *ADHD in the Schools: Assessment and Intervention Strategies* (3rd ed.). Guilford Publications.

DuPaul, G. J., Ervin, R. A., Hook, C. L., & McGoey, K. E. (1998). Peer tutoring for children with attention deficit hyperactivity disorder: Effects on classroom behavior and academic performance. *Journal of Applied Behavior Analysis*, *31*(4), 579-592.

DuPaul, G. J., Weyandt, L. L., & Janusis, G. M. (2011). ADHD in the classroom: Effective intervention strategies. *Theory into Practice*, *50*(1), 35-42.

Eder, D., & Fingerson, L. (2002). Interviewing children and adolescents. In J. F. Gubrium & J. A. Holstein (Ed.). *Handbook of Interview Research: Context and Method*. SAGE.

Eysenck, M., & Keane, M. T. (2013). *Cognitive Psychology* (6th ed.). NY: Psychology Press.

Farrell, M. (2000). Educational inclusion and raising standards. *British Journal of Special Education*, *27*(1), 35-38.

Franken, R. E. (2002). *Human Motivation (5th ed.)*. Belmont: Wadsworth/ Thomson Learning.

Frazier, T. W., Youngstrom, E. A., Glutting, J. J., & Watkins, M. W. (2007). ADHD and achievement: Meta-analysis of the child, adolescent, and adult literatures and a concomitant study with college students. *Journal of Learning Disabilities*, *40*(1), 49-65.

Goldstein, S., & Goldstein, M. (1990). *Managing Attention Disorders in Children: A Guide for Practitioners* (2nd ed.). John Wiley & Sons.

Goldstein, S., Naglieri, J. A., Princiotta, D., & Otero, T. M. (2014). Introduction: A history of executive functioning as a theoretical and clinical construct. In S. Goldstein, & J. A. Naglieri (Eds.), *Handbook of Executive Functioning* (pp. 3-12). New York: Springer.

Gordon, M., Thomason, D., Cooper, S., & Ivers, C. L. (1991). Nonmedical treatment of ADHD/hyperactivity: The attention training system. *Journal of School Psychology*, *29*(2), 151-159.

Gray, D. E. (2013). *Doing Research in the Real World* (3rd ed.). London: SAGE.

Hinshaw, S. P. (2018). Attention deficit hyperactivity disorder (ADHD): controversy, developmental mechanisms, and multiple levels of analysis. *Annual Review of Clinical Psychology*, *14*, 291-316.

James, W. (1890). *The Principles of Psychology*. New York: Holt. [reprinted in 1982]

Johnston, J. M. (1972). Punishment of human behavior. *American Psychologist*, *27*(11), 1033-1054.

Jones, C. B. (1994). *Attention Deficit Disorder: Strategies for School-age Children*. Texas: Communication Skill Builders.

Jurado, M. B., & Rosselli, M. (2007). The elusive nature of executive functions: a review of our current understanding. *Neuropsychology Review*, *17*(3), 213-233.

Kahneman, D. (1973). *Attention and Effort*. Englewood Cliffs, N.J.: Prentice-Hall.

Karweit, N., & Slavin, R. E. (1982). Time-on-task: Issues of timing, sampling, and definition. *Journal of Educational Psychology*, *74*(6), 844-851.

King, N., & Horrocks, C. (2010). *Interviews in Qualitative Research*. Sage.

Kvale, S. & Brinkmann, S. (2009). *Interviews: Learning the Craft of Qualitative Research Interviewing* (2nd ed.). Los Angeles: Sage Publications.

Leitenberg, H. (1973). The use of single-case methodology in psychotherapy research. *Journal of Abnormal Psychology*, *82*(1), 87-101.

Liljestrom, A. (2010). Interviews with groups. In K. Roulston (Ed.), *Reflective Interviewing: A Guide to Theory and Practice* (pp. 9-32). SAGE.

Mertens, D. M. (2015). *Research Methods in Education and Psychology: Integrating Diversity with Quantitative and Qualitative Approaches* (4th ed.). London: Sage.

Miles, M. B., Huberman, A. M., & Saldaña, J. (2013). *Qualitative Data Analysis: A Methods Sourcebook*. SAGE Publications, Incorporated.

Moser, P. K. (2002). Introduction. In P. K. Moser (Ed.), *The Oxford Handbook of Epistemology*. Oxford University Press.

Muijs, D., & Reynolds, D. (2001). *Effective Teaching: Evidence and Practice*. Sage.

Olive, M. L., & Franco, J. H. (2008). (Effect) size matters: And so does the calculation. The Behavior Analyst Today, 9(1), 5-10.

Olive, M. L., & Smith, B. W. (2005). Effect size calculations and single subject designs. *Educational Psychology*, *25*(2-3), 313-324.

Parasuraman, R. (2000). The attentive brain: issues and prospects. In R. Parasuraman (Ed.). *The Attentive Brain* (pp. 3-15). Cambridge, MA: MIT Press.

Parker, H. C. (1992). *The ADD Hyperactivity Handbook for Schools*. Florida: Impact Publications, Inc.

Polanczyk, G., de Lima, M. S., Horta, B. L., Biederman, J., & Rohde, L. A. (2007). The worldwide prevalence of ADHD: A systematic review and metaregression analysis. *American Journal of Psychiatry*, *164*(6), 942-948.

Posner, M. I., & Boies, S. J. (1971). Components of attention. *Psychological Review*, *78*(5), 391-408.

Reed, S. K. (2004). *Cognition: Theories and Applications* (6th ed.). Belmont: Wadsworth/Thomson Learning.

Reid, R., Trout, A. L., & Schartz, M. (2005). Self-regulation interventions for children with attention deficit/hyperactivity disorder. *Exceptional Children*, *71*(4), 361-377.

Robson, C. (2002). *Real World Research* (2nd ed.). Oxford: Blackwell.

Ryan, N., & McDougall, T. (2009). *Nursing Children and Young People with ADHD*. Routledge.

Scruggs, T. E., & Mastropieri, M. A. (1998). Summarizing single-subject research: Issues and applications. *Behavior Modification*, *22*(3), 221-242.

Scruggs, T. E., & Mastropieri, M. A. (2001). How to summarize single-participant research: Ideas and applications. *Exceptionality*, *9*(4), 227-244.

Sherman, J., Rasmussen, C., & Baydala, L. (2008). The impact of teacher factors on achievement and behavioural outcomes of children with Attention Deficit/Hyperactivity Disorder (ADHD): A review of the literature. *Educational Research*, *50*(4), 347-360.

Simpson, M., & Tuson, J. (1995). *Using Observations in Small-Scale Research: A Beginner's Guide*. Edinburgh: Scottish Council for Research in Education.

Smith, L. K. C., & Fowler, S. A. (1984). Positive peer pressure: The effects of peer monitoring on children's disruptive behavior. *Journal of Applied Behavior analysis*, *17*(2), 213-227.

Sohlberg, M. M., & Mateer, C. A. (2001). Improving attention and managing attentional problems. *Annals of the New York Academy of Sciences*, *931*(1), 359-375.

Stahr, B., Cushing, D., Lane, K., & Fox, J. (2006). Efficacy of a function-based intervention in decreasing off-task behavior exhibited by a student with ADHD. *Journal of Positive Behavior Interventions*, *8*(4), 201-211.

Steiner, N. J., Frenette, E. C., Rene, K. M., Brennan, R. T., & Perrin, E. C. (2014). Neurofeedback and cognitive attention training for children with attention-deficit hyperactivity disorder in schools. *Journal of Developmental & Behavioral Pediatrics*, *35*(1), 18-27.

Tang, Y. Y., & Posner, M. I. (2009). Attention training and attention state training. *Trends in Cognitive Sciences*, *13*(5), 222-227.

Taylor, E. A. (2007). *People with hyperactivity: Understanding and managing their problems*. Mac Keith Press.

Teeter, P. A. (1998). *Interventions for ADHD: Treatment in Developmental Context*. New York: Guilford Press.

Teeter, P. A., & Semrud-Clikeman, M. (1995). Integrating neurobiological, psychosocial, and behavioral paradigms: A transactional model for the study of ADHD. *Archives of Clinical Neuropsychology*, *10*(5), 433-461.

The British Psychological Society. (2017). Standards for the Accreditation of Doctoral Programmes in Educational Psychology in England, Northern Ireland & Wales. Online. Available at https://www.bps.org.uk/sites/bps.org.uk/files/Accreditation/Education

al%20Accreditation%20(England,%20NI,%20Wales)%202017_WEB .pdf (accessed 18 May 2018)

Timimi, S., & Taylor, E. (2004). ADHD is best understood as a cultural construct. *The British Journal of Psychiatry*, *184*(1), 8-9.

Tracy, S. J. (2010). Qualitative quality: Eight "big-tent" criteria for excellent qualitative research. *Qualitative Inquiry*, *16*(10), 837-851.

Treisman, A. M. (1960). Contextual cues in selective listening. *Quarterly Journal of Experimental Psychology*, 12(4), 242-248.

Van der Oord, S., Van der Meulen, E. M., Prins, P. J., Oosterlaan, J., Buitelaar, J. K., & Emmelkamp, P. M. (2005). A psychometric evaluation of the social skills rating system in children with attention deficit hyperactivity disorder. *Behaviour Research and Therapy*, *43*(6), 733-746.

Walker, A. (2013). *Classroom Support Strategies for Students with ADHD: Frequency of Use, Level of Effectiveness and Roadblocks to Implementation*. Unpublished paper for the degree of PhD. The University of Alabama at Birmingham. Online. Available at http://www.mhsl.uab.edu/dt/2013/Walker_uab_0005D_11189.pdf (accessed 12 February 2017).

Walliman, N. (2006). *Social Research Methods*. Sage.

Webster, R. (2015). The classroom experiences of pupils with special educational needs in mainstream primary schools - 1976 to 2012. What do data from systematic observation studies reveal about pupils' educational experiences over time?. *British Educational Research Journal*, *41*(6), 992-1009.

Wehmeier, P. M., Schacht, A., & Barkley, R. A. (2010). Social and emotional impairment in children and adolescents with ADHD and the impact on quality of life. *Journal of Adolescent Health*, *46*(3), 209-217.

Willcutt, E. G. (2012). The prevalence of DSM-IV attention-deficit/hyperactivity disorder: a meta-analytic review. *Neurotherapeutics*, *9*(3), 490-499.

Willcutt, E. G., Doyle, A. E., Nigg, J. T., Faraone, S. V., & Pennington, B. F. (2005). Validity of the executive function theory of attention-deficit/hyperactivity disorder: A meta-analytic review. *Biological Psychiatry*, *57*(11), 1336-1346.

Williams, M. and May, T. (1996). *Introduction to the Philosophy of Social Research*. London: UCL Press.

Wodrich, D. L. (1994). *Attention-deficit/hyperactivity Disorder: What Every Parent Wants to Know*. Baltimore: Paul H. Brookes.

Yardley, L. (2000). Dilemmas in qualitative health research. *Psychology and Health*, *15*(2), 215-228.

APPENDICES

Appendix 1. Professional Development Sessions PowerPoint Slides

Types of Attention

- Focus attention
- Sustained attention
- Selective attention
- Divided attention
- Alternating attention

Types of Attention

- Focus attention
  - when a person attends to a particular task or stimulus at hand
- Sustained attention
  - when a person maintains attention to the same task over an extended period of time

Types of Attention

- Selective attention
  - when a person selects one stimulus to attend and neglects other competing stimuli
- Divided attention
  - when a person attends to more than one stimulus simultaneously
- Alternating attention
  - when a person shifts his/her focus of attention and move between tasks

Types of Attention

- Bottom-up attention
 - driven by the sensory input data
  - automatic and unconscious manners
- Top-down attention
  - driven by goals
  - conscious type of attention

Types of Attention

- Visual attention
- Auditory attention
- Tactile attention
- Spatial attention
- …

Role of Attention

Information Processing Model

Stimuli → Sensory register → Short-term memory → Long-term memory

rehearsal
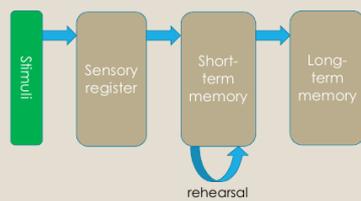
Role of Attention

Information Processing Model
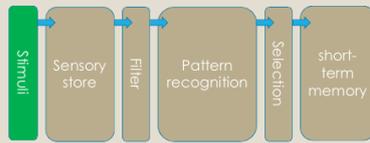
Major Theories of Attention

- Bottleneck theories
  - A mechanism acts like a filter to allow just one stimulus passing through the channel
  - Preventing the limited capacity to be overloaded
- Capacity theories
  - Attention as a kind of cognitive effort, having limited cognitive capacity
  - Human activities that require attention would compete for the limited cognitive capacity
  - Simultaneous activities create interference affecting with each other
- …

Attention Difficulties

- What are the behaviours or characteristics of students with attention issues?
  - easily distracted
  - fidgeting, moving, running, climbing about
  - excessive talking
  - difficulty waiting for turn
  - difficult to persist
  - disorganised
  - forgetful
  - …
- Hyperactive-impulsive
- Daydreaming
- Delay in response time

Insights from Studies on ADHD

- Worldwide prevalence estimates
  - 5.9% to 7.1% in children and adolescents
- Impacts:
  - On academic performance:
    - have significantly lower scores in SATs
    - more likely to be retained during elementary school
    - at a higher risk for dropping out of high school
  - On behaviour:
    - display more disruptive behaviour in classrooms
    - Display more difficulties in peer relationship

Insights from Studies on ADHD

- Causation:
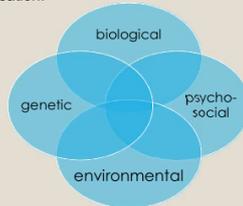
Insights from Studies on ADHD

- Association with executive function deficits
  - Executive functions are a collection of high-level cognitive processes, including four components:
    - Goal formation
    - Planning
    - Execution of goal-related plans
    - Effective performance
  - Examples of executive functions of the brain:
    - Sustained attention
    - Temporary immobilization
    - Working memory
    - Self-regulation
    - Reflection

Insights from Studies on ADHD

- Association with executive function deficits
  - Self-regulation deficits
    - Not able to use thought and language to direct behavior
  - Arousal deficits
    - Not functioning at optimal arousal states or too excited about certain aspects of a task
  - Inhibitory deficits
    - Not able to control behavior
  - Reinforcement deficits
    - Diminished sensitivity to rewards and punishment

Attention Difficulties

- Inattention is a complex set of cognitive processes that may refer to difficulties with focus attention, sustained attention, selective attention, divided attention or alternative attention
- C/YP who struggle with attention difficulties (not diagnosed with ADHD) may have similar issues in executive functions (e.g. issues in self-regulation, arousal, inhibition and reinforcement/motivation)

Attention Difficulties

- Inattention is a complex set of cognitive processes that may refer to difficulties with focus attention, sustained attention, selective attention, divided attention or alternative attention
- C/YP who struggle with attention difficulties (not diagnosed with ADHD) may have similar issues in executive functions (e.g. issues in self-regulation, arousal, inhibition and reinforcement/motivation)
- Other causes:
  - Attachment needs
  - General cognitive ability
  - …

Intervention Strategies

- What are the ways to support students with attention difficulties?

Intervention Strategies

- Direct training
  - Attention training
  - Self-regulation training
  - Mindfulness training
- Peer tutoring/support
- Whole class strategies
- Sensory strategies
- Academic intervention
- Behaviour management
- Medication (for C/YP diagnosed with ADHD)

Whole Class Strategies

- Classroom environment
- Seating arrangement
- Learning tasks
- Teaching and learning approach
- Reinforcements

Supporting Students with Attention Difficulties

Sau Yin LAU
Trainee Educational Psychologist
University of Sheffield
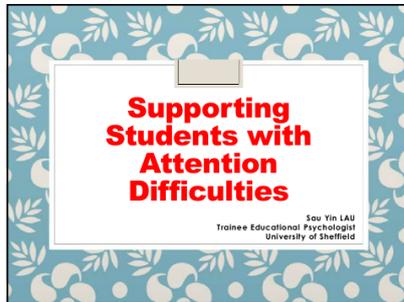
Overview – Session 2

- Re-cap of Major Concepts Discussed in Session 1
- Whole Class Strategies
- Discussion on the Strategies to Be Used in the Coming Week(s)

Types of Attention

- Focus attention
- Sustained attention
- Selective attention
- Divided attention
- Alternating attention

Types of Attention

- Bottom-up attention
- Top-down attention

- Visual attention
- Auditory attention
- Tactile attention
- Spatial attention
- …
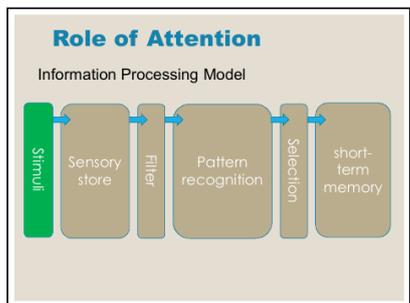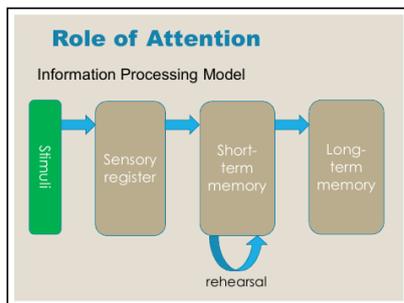
Role of Attention

Information Processing Model

Stimuli → Sensory register → Short-term memory → Long-term memory

rehearsal

Role of Attention

Information Processing Model

Stimuli → Sensory store → Filter → Pattern recognition → Selection → short-term memory

Insights from Studies on ADHD

- Association with executive function deficits
  - Self-regulation deficits
  - Arousal deficits
  - Inhibitory deficits
 - Reinforcement deficits

Intervention Strategies

- Direct training
  - Attention training
  - Self-regulation training
  - Mindfulness training
- Peer tutoring/support
- Whole class strategies
- Sensory strategies
- Academic intervention
- Behaviour management
- Medication (for C/YP diagnosed with ADHD)

Whole Class Strategies

- Classroom environment
- Seating arrangement
- Learning tasks
- Teaching and learning approach
- Reinforcements

Classroom Environment

- Fewer distractions
  - Fewer classroom displays that are distractive
  - Quiet

Seating Arrangement

- Front row
- Not close to door, windows, heaters/air-conditioners, high-traffic areas

  Reduce the amount of other stimuli

- Face the teacher
- Face the classroom white board / screen
- Face other children or not – arousal issue
- Sit close to children with good role models

  Self-regulation issues

Learning Tasks

- Broken down into smaller parts

  Working memory, self-regulation issues

  - Concise, simple
  - Time-limited,
  - to be finished within a shorter period of time
- Multi-sensory
  - Visual stimuli: visual cues, colour cues

  Greater chance to have the stimuli being attended

  - Hands-on tasks
- Interesting, novel

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Learning Tasks

- Meaningful
  - Practical, authentic learning
  - Suit students' goals
- Ability-appropriate
- Challenging (still within the ability range)
- Greater variety of tasks
- Clear expectation when students are expected to shift between tasks

> **Greater chance to have top-down attention**

Teaching & Learning Approach

- Interactive
- Peer tutoring
- Cooperative learning
- Engaging students when teacher is lecturing
  - Q & A
  - Students using sign language to give responses
  - Teacher using cueing signal to remind students
- Use of worksheets
  - With visual cues
  - With self-explanatory notes
  - With tasks of different levels of difficulty

> **Self-regulation issues**

Reinforcements

- Rewards
  - Tangible vs intangible
  - Immediate, more frequent
- Reward system - goals

> **Reinforcement issues**

> **Greater chance to have top-down attention**

Strategies to Be Used

Discussion

Appendix 2. Information Sheets and Consent Forms to Potential Teacher Participants, Student Participants and Their Parents

The
University
Of
Sheffield.

The
School
Of
Education.

Teacher Participant Information Sheet

Study Title: A Single Case Study on Supporting Students to Improve Concentration in a Mainstream Classroom Setting

You are invited to take part in a research study that aims to investigate the impacts of different intervention strategies in supporting primary students who have attention difficulties. Before you decide whether to take part, it is important that you understand why the research is being done and what it would involve. Please take time to read the following information carefully. Ask the researcher if there is anything that is not clear or if you would like more information.

What is the purpose of the study?

This study aims to investigate the impacts of different intervention strategies in supporting primary students who have attention difficulties to increase their time-on-task in a mainstream classroom setting.

Why have I been invited?

The researcher will implement some recognised methods to support children's attention to further aid learning. The researcher is inviting primary students with attention difficulties and their teachers to take part in this study. It is hoped to recruit five students in total, among them two will be back-up participants.

Do I have to take part?

Your participation is entirely voluntary and it is up to you to decide whether or not to take part. If you do decide to take part you will be able to keep a copy of this information sheet. You will then be asked to sign a consent form to show you have agreed to take part. You are free to withdraw at any time, without giving a reason.

What will happen to me if I take part?

In the new academic year, you will be asked to take a role in implementing two types of intervention strategies one by one to support your students who participate in this study to improve their concentration. These strategies are: Peer Support and Whole Class Strategies. Regarding Peer Support, your role is to find a suitable student to act as a peer supporter for each participating student, to help in guiding the peer supporter to give a friendly reminder to the participating student when the latter starts to be off-task, and to help in guiding each pair of students to get a mutual consent about their roles and about what the friendly reminder looks like. Regarding Whole Class Strategies, your role is to attend three one-hour professional development sessions provided by the researcher who is a Trainee Educational Psychologist on

whole class strategies that support students with attention difficulties, and to try out the strategies in your class for about a week.

After all the intervention strategies have been implemented, you will be asked to attend an interview to share your views and your experience in the process. The interview will be held in your school and will last for 45-60 minutes at your convenience.

The participating students will be observed in class and the amount of their on-task and off-task time during a number of lessons will be recorded before and after each type of the intervention strategy has been introduced so that the effectiveness of the strategies can be investigated. They will also be asked to attend an interview to share their experience on the use of the strategies.

What are the possible benefits of taking part?

It is hoped that the above-mentioned intervention strategies will help students who have attention difficulties to increase their time-on-task in a mainstream classroom setting. If the strategies prove effective then your students and you may benefit from taking part in the research.

This study will create knowledge about the effectiveness of different types of intervention strategies for individual students with attention difficulties. It will also create knowledge about the learner's perspective in receiving the intervention and about the teachers' perspective in implementing the intervention. It would help practitioners gain more insights in supporting students with attention difficulties in an inclusive education environment.

What are the possible disadvantages and risks of taking part?

After the intervention strategy Peer Support has been implemented for about a week, it will be removed before the second strategy is implemented. The second strategy Whole Class Strategies will also be removed after it has been implemented for about a week. The reason for such arrangement is to investigate the effectiveness of each individual type of intervention strategies. Some people may think that the removal of the intervention strategy will lead to deterioration in attention of the participants, although at the time of the research there is no evidence for this. To reduce the possibility of having this kind of risk, the researcher will talk to you about continuing to provide the intervention strategies to the participating students after the whole process of data collection has been completed if these strategies are found to be effective and welcomed by the participating students.

What happens when the research study stops earlier than expected or when some of the planned strategies are skipped?

Should the research study stop earlier than planned or some of the planned strategies be skipped and you are affected in any way the researcher will tell you and explain why.

Will my taking part in this study be kept confidential?

All the information collected about you during the course of the research will be kept strictly confidential. The information collected as paper copies will be stored under lock and key, while the digital data can only be accessed with a secure password.

The data collected will be used only for the purpose of this research. All information will be coded and anonymised. You and your school will not be identified or identifiable in any reports, publications or presentations.

Will I be recorded, and how will the recorded media be used?

Your voice will be recorded using a digital recorder during the interview. The audio records will be encrypted and stored in an external storage device that is kept under lock and key. The recorded conversation will be transcribed for data analysis purpose. Once the transcript has been completed and checked by the researcher for accuracy, the audio records will be destroyed.

What will happen to the results of the research study?

The results of this study will be reported and submitted by the researcher to the University of Sheffield in partial fulfilment of the requirements for the professional doctoral degree Doctor of Educational and Child Psychology. The researcher will present the findings for a viva voce (oral examination) and in a seminar at the University of Sheffield. The report will be accessible to other researchers and post-graduate students. A short summary of the report will be sent to you by email. As above, it is important to note that your individual data will not be able to be identified in any reports, publications or presentations that arise from the research.

Who is organising and funding the research?

The research study is organised and funded by the researcher.

Who has reviewed the study?

This research study has been approved by the Research Ethics Committee in the School of Education at the University of Sheffield. For more information on this procedure, please visit: https://www.sheffield.ac.uk/ris/other/gov-ethics/ethicspolicy

What if something goes wrong?

If you have any complaints about this research study in the first instance you can contact the researcher Ms Sau Yin Lau (sylau2@sheffield.ac.uk). If you feel your complaint has not been handled to your satisfaction you can contact the researcher's supervisor Dr Lorraine Campbell (l.n.campbell@sheffield.ac.uk) to take your complaint further.

Further information and contact details.

If you would like more information about this research study, then you should contact the researcher, Ms Sau Yin Lau (sylau2@sheffield.ac.uk).

**Thank you for reading this far and considering taking part in this research.
If you would like to participate then please complete and sign the consent form, which is attached.**

Sau Yin Lau

Trainee Educational Psychologist and
Student of Doctor of Educational and Child Psychology

11th October 2017

Student Participant Information Sheet

Study Title: A Single Case Study on Supporting Students to Improve Concentration in a Mainstream Classroom Setting

I am doing some work in your school to understand how to help children to concentrate better in class. I will be working with some children in your school and I would like to invite you to take part.

If you would like to take part, we will ask a buddy in your class to give you a friendly reminder during lessons over about a week to help you concentrate. I will meet with you both to show you what you need to do. I will be visiting your classroom sometimes to see how you are getting on and talking with your class teacher about the lessons you are having. After that, I will ask you to talk to me about how it went. I will record our talk, and then keep it safely and privately.

You can say if you want to take part in this activity or not.

Even if you do take part, you can stop whenever you want to by telling your teacher at any time.

Please put your name on the form joined to this paper if you would like to take part. Thank you.

Sau Yin Lau

Sau Yin Lau

Trainee Educational Psychologist and
Student of Doctor of Educational and Child Psychology

11th October 2017

Parent of Student Participant Information Sheet

Study Title: **A Single Case Study on Supporting Students to Improve Concentration in a Mainstream Classroom Setting**

Your child is invited to take part in a research study along with other children in school that aims to understand how to support primary students to improve their concentration in class. Before you decide whether to agree with your child's participation, it is important that you understand why the research is being done and what it would involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask the researcher or your child's class teacher if there is anything that is not clear or if you would like more information.

What is the purpose of the study?

This study aims to understand how to support primary students to improve their concentration in class.

Why has my child been invited?

The researcher will implement some recognised methods to support children's attention in your child's class to further aid learning. This has been agreed and planned with the school. Your child has indicated to his/her teacher that he/she struggles with attention. Your child is invited to take part in this study alongside a number of his/her peers.

Does my child have to take part?

Your child's participation is entirely voluntary and it is up to you and your child to decide whether or not to take part. If your child takes part you will be able to keep a copy of this information sheet. You and your child will then be asked to sign a consent form to show that both of you have agreed for your child to take part. Your child is free to withdraw at any time, without giving a reason.

What will happen to my child if he/she takes part?

If your child would like to take part in this study, he/she will receive some support from your child's peer and teacher in the coming weeks. Your child will be supported by a peer who can give occasional friendly reminders to your child for about a week. Your child and his/her peer will be guided by the researcher and your child's teacher to do that. Your child' teacher will also introduce other ways to provide greater support to your child within normal classroom teaching. Your child will be observed in class by myself to see how they are getting on and after that, your child will be asked to attend an interview to share his/her views and experience on the use of the

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strategies. The interview will be held in your child's school and will last for about 20-30 minutes.

What are the possible benefits of taking part?

It is hoped that the above-mentioned methods will help your child concentrate better during lessons. This study will let teachers, educational psychologists and other professionals who work with children know better how to support children to improve their concentration.

What are the possible disadvantages and risks of taking part?

After your child has received peer support for about a week, he/she will stop receiving this type of support after which whole class strategies will be put in place. It is arranged in this way so that the effectiveness of each type of support can be studied. Following the research, to avoid any negative effects from removal of the interventions, the researcher will discuss with your child's teachers to see whether peer support or other changes can be provided to your child again after the whole study has been completed, if this is helpful and your child welcomes it.

What happens when the research study stops earlier than expected or when some of the planned strategies are skipped?

Should the research study stop earlier than planned or some of the planned strategies be skipped and your child is affected in any way the researcher will tell you and explain why.

Will my child's taking part in this study be kept confidential?

All the information collected about your child during the course of the research will be kept strictly confidential. The information collected as paper copies will be stored under lock and key, while the digital data can only be accessed with a secure password. The data collected will be used only for the purpose of this research. All information will be coded and anonymised. Your child and your child's school will not be identified or identifiable in any reports, publications or presentations.

Will my child be recorded, and how will the recorded media be used?

Your child's voice will be recorded using a digital recorder during the interview. The audio records will be encrypted and stored in an external storage device that is kept under lock and key. The recorded conversation will be transcribed for data analysis purpose. Once the transcript has been completed and checked by the researcher for accuracy, the audio records will be destroyed.

What will happen to the results of the research study?

The results of this study will be reported and submitted by the researcher to the University of Sheffield in partial fulfilment of the requirements for the professional doctoral degree Doctor of Educational and Child Psychology. The researcher will present the findings for a viva voce (oral examination) and in a seminar at the University of Sheffield. The report will be accessible to other researchers and post-graduate students. A short summary of the report will be sent to you by email. As above, it is important to note that your child's individual data will not be able to be identified in any reports, publications or presentations that arise from the research.

Who is organising and funding the research?

The research study is organised and funded by the researcher.

Who has reviewed the study?

This research study has been approved by the Research Ethics Committee in the School of Education at the University of Sheffield. For more information on this procedure, please visit: https://www.sheffield.ac.uk/ris/other/gov-ethics/ethicspolicy

What if something goes wrong?

If you have any complaints about this research study in the first instance you can contact the researcher Ms Sau Yin Lau (sylau2@sheffield.ac.uk). If you feel your complaint has not been handled to your satisfaction you can contact the researcher's supervisor Dr Lorraine Campbell (l.n.campbell@sheffield.ac.uk) to take your complaint further.

Further information and contact details.

If you would like more information about this research study, then you should contact the researcher, Ms Sau Yin Lau (sylau2@sheffield.ac.uk).

Thank you for reading this far and considering allowing your child to take part in this research. If your child would like to participate then please complete and sign the consent form, which is attached.

Sau Yin Lau

Sau Yin Lau

Trainee Educational Psychologist and
Student of Doctor of Educational and Child Psychology

11th October 2017

The
University
Of
Sheffield.

The
School
Of
Education.

Teacher Participant Consent Form

Study Title: A Single Case Study on Supporting Students to Improve Concentration in a Mainstream Classroom Setting

Name of Researcher: Ms Sau Yin Lau

Please tick box

1. I confirm that I have read and understand the information sheet explaining the above research study and I have had the opportunity to ask questions about the study.

2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason. Should I not wish to join any part of the study, I am free to decline.

3. I understand that my responses will be kept strictly confidential. I understand that I and my school will not be identified or identifiable in any reports, publications or presentations that result from the research.

4. I understand how the audio record taken during the interview will be used, stored and destroyed. I give permission for the researcher to record my voice during the interview.

5. I agree to take up the roles described in the information sheet.

6. I agree to take part in the above research study.

_____   _____   _____
Name of Participant   Date   Signature

_____   _____   _____
Name of School Head   Date   Signature

_____   _____   _____
Name of Researcher   Date   Signature
(To be signed and dated in presence of the participant)

Participant Identification Number (to be completed by the researcher):

Copies: The participant gets a copy of this form. The researcher keeps a copy safely.

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The
School
Of
Education.

Student Participant Consent Form

Study Title: A Single Case Study on Supporting Students to Improve Concentration in a Mainstream Classroom Setting

Name of Researcher: Ms Sau Yin Lau

Please tick box

1. I have read the information sheet and I understand it. I have had the chance to ask questions.

2. I understand that I am free to decide if I want to take part in this study. I understand that I am free to leave the study by telling my teacher at any time.

3. I want to improve my concentration in class and I welcome being supported by my peer and by my teacher.

4. I agree to take part in the activities described in the information sheet.

5. I agree to let the researcher record my voice during the conversation when I talk about the supports.

6. I understand that my name will not be shown in any books, magazines, websites or meetings that result from the study.

7. I agree to take part in the above research study.

_____ _____ _____
Name of Participant   Date   Signature

_____ _____ _____
Name of Parent   Date   Signature

  Sau Yin Lau
_____ _____ _____
Name of Researcher   Date   Signature
(To be signed and dated in presence of the participant)

Participant Identification Number (to be completed by the researcher):

Copies: The participant gets a copy of this form. The researcher keeps a copy safely.

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Appendix 3. Information Sheets and Consent Forms to Potential Peer Supporters and Their Parents

The
School
Of
Education.

Peer Supporter Information Sheet

Study Title: A Single Case Study on Supporting Students to Improve Concentration in a Mainstream Classroom Setting

I am doing a study to understand how to support students to concentrate better in class. Some children in your class will take part in the study. I would like to invite you to become a peer supporter to one of those children.

If you would like to become a peer supporter, you will sit next to one of those children for about a week. You will be asked to give a friendly reminder to him/her sometimes, to help him/her keep on going with the learning. I will meet with you both to show you what you need to do.

You are free to decide if you want to become a peer supporter in this study. If you agree to do so, you are free to stop doing that by telling your teacher at any time.

If you would like to become a peer supporter in this study, please sign the form stapled to this paper. Thank you.

Sau Yin Lau

Trainee Educational Psychologist and
Student of Doctor of Educational and Child Psychology

11th October 2017

Parent of Peer Supporter Information Sheet

Study Title: **A Single Case Study on Supporting Students to Improve Concentration in a Mainstream Classroom Setting**

Your child is invited to become a peer supporter in a research study that aims to understand how to support primary students to improve their concentration in the classroom. Before you decide whether to agree with your child's becoming a peer supporter, I would like to explain why the research is being done and what will happen if your child becomes a peer supporter. Please take time to read the following information and do ask the researcher or your child's class teacher if there is anything that is not clear or if you would like more information.

What is the purpose of the study?

This study aims to understand how to support primary students to improve their concentration in class.

Why has my child been invited?

I am hoping to trial some recognised methods to support children's attention in your child's class to further aid learning. This has been agreed and planned with the school. One type of support comes from peers where children will be asked to help each other. Your child is invited to become a peer supporter in this study alongside a number of his/her peers.

Does my child have to accept the invitation?

Your child's support is entirely voluntary and it is up to you and your child to decide whether or not to become a peer supporter. If your child would like to do so you will be able to keep a copy of this information sheet. You and your child will then be asked to sign a consent form to show that both of you have agreed with this decision. Your child is free to withdraw at any time, without giving a reason.

What will happen to my child if he/she become a peer supporter?

If your child would like to become a peer supporter, your child will sit next to a child who takes part in this study for about a week. Your child will be asked to give occasional friendly reminders to that child in lessons. The researcher and your child's teacher will explain to your child what to do in a guidance session that will last for 15-30 minutes.

What are the possible benefits of becoming a peer supporter?

Your child will become a part of the group of children who would like to support each other. This study will help teachers, educational psychologists and other

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professionals who work with children know better how to support children to improve their concentration in class.

What are the possible disadvantages and risks of becoming a peer supporter?

Your child will need to give a small amount of time to support the child who sits next to him/her for about a week. The researcher does not expect your child to spend much time in performing that role and it is designed not to unduly interfere with their own learning in class.

It may be that your child could feel uncomfortable if the child sitting next to him/her does not follow the friendly reminders; and that child may feel uncomfortable about being reminded. To reduce any possible negative affect created during the process, all children who take part in this study will have indicated they want to take part in the peer support activity. In addition, your child and his/her peer will be guided by myself and your child's teacher throughout.

After about a week, your child will no longer provide peer support and may feel uncomfortable about this. However, if your child would like to continue to offer his/her support after the end of the study and no negative impacts have been found it may be possible to continue in liaison with your child's teacher and the child receiving support.

Will my child be recorded or observed?

No, your child will not be recorded or observed in this study. Your child and all participants of this study will not be identified or identifiable in any reports, publications or presentations that result from the research.

What if something goes wrong?

If you have any complaints about this research study in the first instance you can contact the researcher Ms Sau Yin Lau (sylau2@sheffield.ac.uk). If you feel your complaint has not been handled to your satisfaction you can contact the researcher's supervisor Dr Lorraine Campbell (l.n.campbell@sheffield.ac.uk) to take your complaint further.

Further information and contact details.

If you would like more information about this research study, then you should contact the researcher, Ms Sau Yin Lau (sylau2@sheffield.ac.uk).

Thank you for reading this far and considering allowing your child to become a peer supporter in this research. If your child would like to become a peer supporter then please complete and sign the consent form, which is attached.

Sau Yin Lau

Trainee Educational Psychologist and
Student of Doctor of Educational and Child Psychology

11th October 2017

Peer Supporter Consent Form

Study Title: A Single Case Study on Supporting Students to Improve Concentration in a Mainstream Classroom Setting

Name of Researcher: Ms Sau Yin Lau

Please tick box

1. I have read the information sheet and I understand it. I have had the chance to ask questions.

2. I understand that I am free to decide if I want to become a peer supporter in this study. I understand that I am free to stop being a peer supporter by telling my teacher at any time without giving any reason.

3. I agree to take part in the activities described in the information sheet.

4. I agree to become a peer supporter in the above research study.

_____   _____   _____
Name of Participant   Date   Signature

_____   _____   _____
Name of Parent   Date   Signature

  Sau Yin Lau_____   _____   _____
Name of Researcher   Date   Signature
(To be signed and dated in presence of the peer supporter)

Copies: The peer supporter gets a copy of this form. The researcher keeps a copy safely.

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# Appendix 4. Peer Support Sessions Activity Outline

Peer Support Sessions:
- Two identical sessions were held
- Two pairs of children (one student participant and his/her peer supporter) and one teacher participant attended each session
- I conducted the sessions and the teacher participants provided support

Themes	Activities	Mins
Introduction	- I introduced myself and the teacher - I invited the children to introduce themselves ("your name, and things you like to do") - The children introduced themselves	2
Goal setting	- I showed three pictures (downloaded from the web): a child supporting another child to learn (one picture showing boys, one showing girls), a group of children (boys and girls) joining their hands together and wearing smiling faces - I asked the children what they thought about the children shown in the pictures - The children shared their views - I recognised their responses - I shared that I thought it is beautiful when people support each other - I expressed the wish of having children supporting each other	3
Experience of providing and receiving supports	- Providing support: - I invited the children to share an experience of supporting another person - The children shared (one by one) - I invited the children to talk about their feelings in that incident - The children shared (one by one) - Receiving support: - I invited the children to share an experience of being supported by another person - The children shared (one by one) - I invited the children to talk about their feelings in that incident - The children shared (one by one) - Rounding-up: - I recognised the children's feelings - I emphasised again the beauty of people supporting each other	6

	○ I recognised the children's efforts to support other people and recognised their willingness to let other people support them	

Types of friendly reminders	• I explained the tasks in the coming days: AAA (peer supporters' name) would give a friendly reminder to XXX (student participants' name) when XXX lost attention in class (repeat to name other pair of children)
	• I introduced different ways to show friendly reminders and used an example to demonstrate for each type of reminders
	  ○ a verbal reminder
	  ○ a gesture reminder
	  ○ a written reminder
	  ○ a picture reminder: I drew a simple picture on a A6 paper (shown below) in front of the children, explained that we might add a few words to the picture, and then wrote a few words next to the picture as a demonstration
	• I invited the children to brainstorm examples for each type of reminder
	• The children gave suggestions
	• I acknowledged their suggestions
		5

Appropriate attitude in giving and receiving reminders	• I explained that appropriate attitude was important when we worked together
	• Giving reminders:
	  ○ I used role play to demonstrate a negative attitude (plays the role of a peer supporter, and said "Stop doing that" loudly and angrily)
	  ○ I asked the children if it was good to give a reminder to the peer in that way, and asked why
	  ○ The children gave their views
	  ○ I explained, gave suggestions (e.g. "Focus on your work" to replace "Stop doing that"), and summarised the key values: respect, positive, and kind (what "friendly" means)
	• Receiving reminders:
	  ○ I asked the children "If somebody gives you a friendly reminder, what would you do to respond?"
	  ○ The children gave their views
	  ○ I used role play to demonstrate a negative feedback (showed a disdainful look, neglected the peer supporter)
	  ○ I asked the children what they thought about these feedback
	  ○ The children gave their views
	  ○ I explained and summarised the key values: respect, positive, kind and thankful
		5

Deciding/ making the friendly reminder	• I invited the children to decide with their partner what type of friendly reminder they would use (verbal, gesture, written, picture) • Each pair of children discussed and decided • The teacher participant and I supported the two pairs of children in the process • As the children wanted to use written/picture reminders, I provided blank A6 papers and colour pens for them to use, and supported them to make the written/picture card	5

Round-up	• I acknowledged the children's participation
	• I reminded the children to start using friendly reminders next Monday
	• I explained the situation that the peer supporters did not respond positively:
	  o Suppose XXX (student participants' names) lost attention and then AAA (peer supporters' names) gave a friendly reminder to him/her
	  o If XXX neglected the friendly reminder, AAA did not need to keep on giving the reminders
	  o The peer supporters just needed to give a friendly reminder when their peers started to lose attention
	• I reminded the children to be friendly and positive
	• I encouraged them to improve their concentration in class
	• I wished them happy when they supported each other
		2

Total Time		28

Appendix 5. Peer Support Cards Produced by the Four Pairs of Student Participant and Peer Supporter

focus!

Focus ▓▓▓!
Do your work!
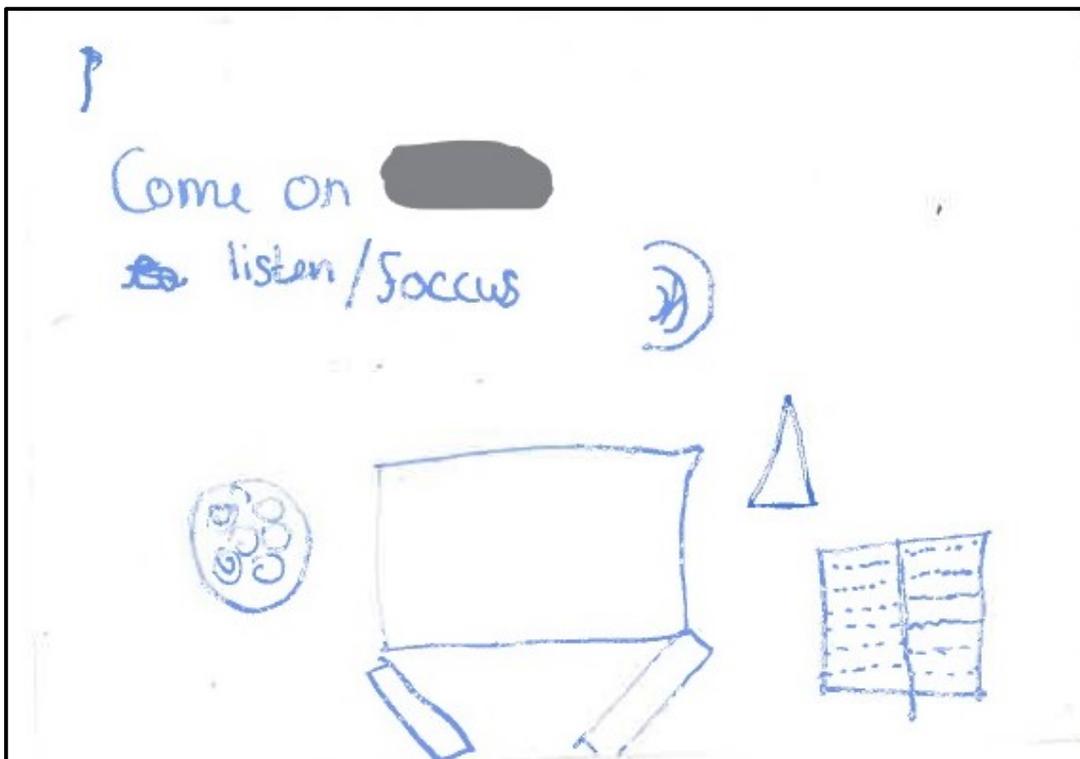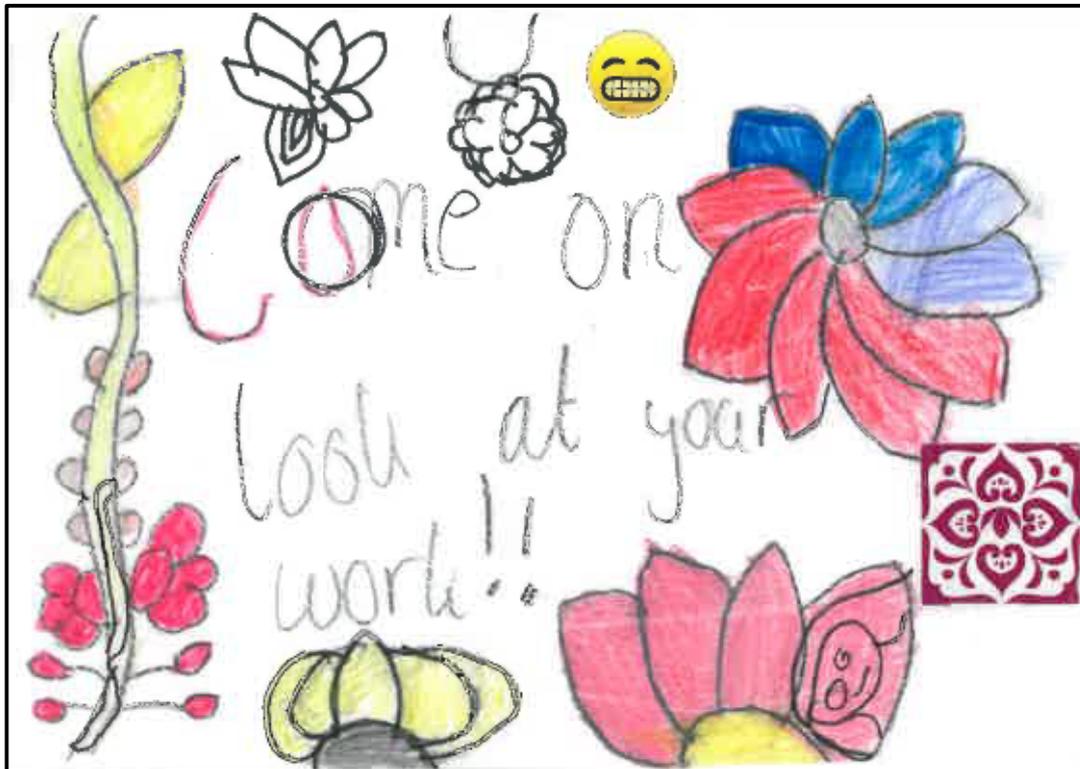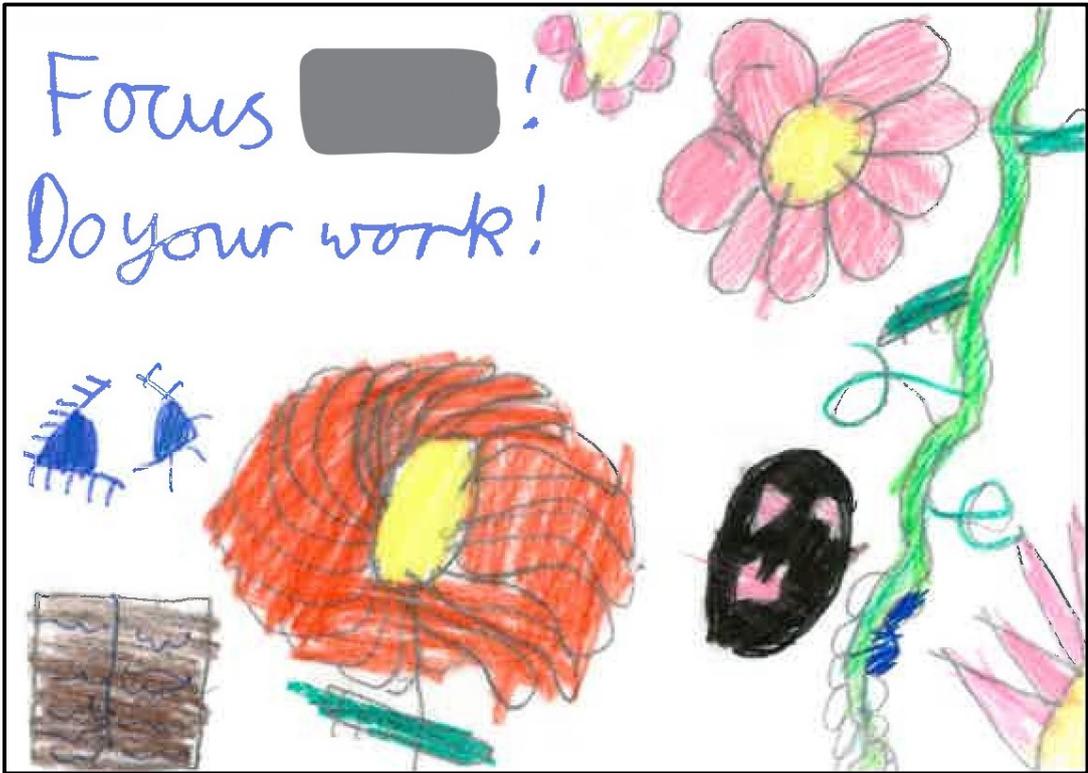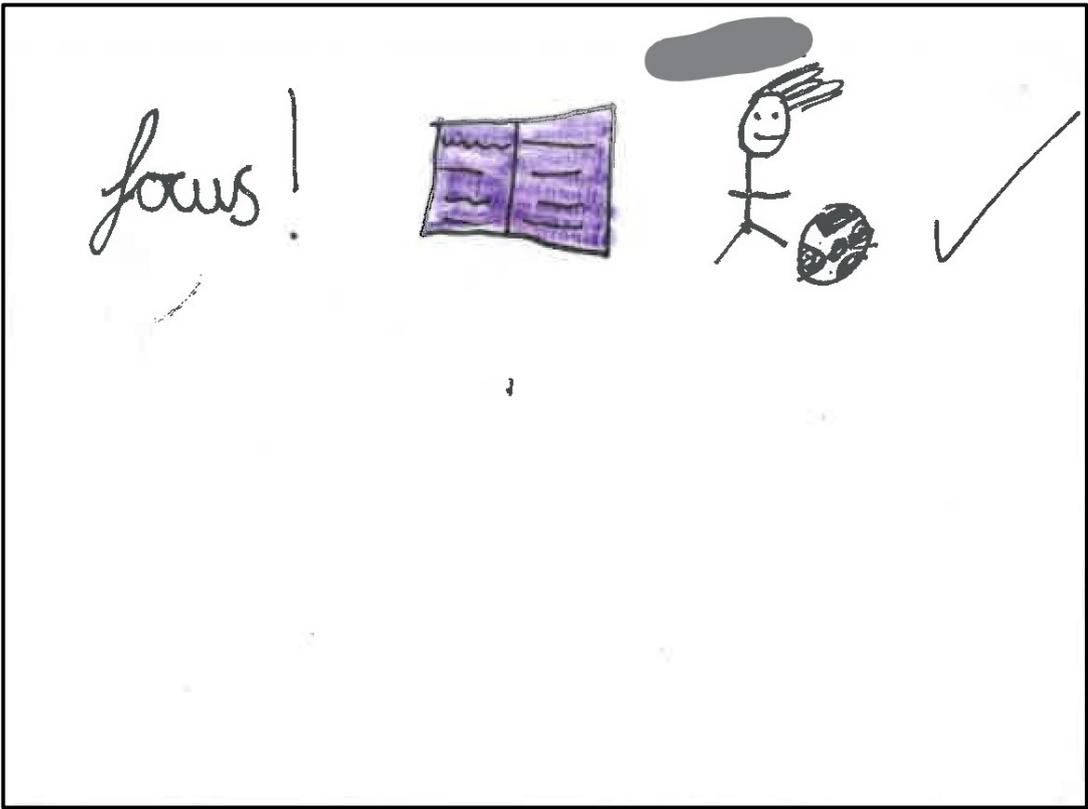
Appendix 6. Professional Development Sessions Activity Outline

Professional Development Sessions:

- Two different sessions were provided to the Class Teacher (one teacher participant)
- I conducted the sessions, using PowerPoint slides to support
- The SENCo (another teacher participant) was not able to attend the sessions; she received the PowerPoint slides hand out and I explained briefly to her the various types of whole class strategies

Session 1:

Themes	Activities	Mins
Introduction	• I introduced the overview of the two sessions	1
Motivating the teachers	• I played a video clip on selective attention test (inattentional blindness), and invite the teacher to share their answers • I carried out the Stroop test with the teacher • I invited the teacher to share his feelings and thoughts about attention • The teacher shared	5
Meaning of attention	• I invited the teacher to share his views on the meaning of attention • The teacher shared • I recognised the teacher's answers • I explained one meaning of attention, and suggested that there were different types of attention which might affect the meaning of attention	2
Types of attention	• I explained the different types of attention, and used a question and answer method to increase interaction in the process	8
Role of Attention	• I used the information processing model to explain the role and importance of attention	8
Major Theories of Attention	• I briefly explained the major theories of attention	5
Attention Difficulties	• I invited the teacher to share his views on the behaviours or characteristics of students with attention issues • I recognised the teacher's answers • I summarised the behaviours/characteristics	3
Insight from Studies on ADHD	• I explained the findings of some studies on ADHD, including the worldwide prevalence estimates in children and adolescents, and the impacts on academic performance and behaviour	15

	• I explained the association of ADHD with executive function deficits, with emphasis on
	  o Self-regulation deficits
	  o Arousal deficits
	  o Inhibitory deficits
	  o Reinforcement deficits
	• I suggested that the insight from the studies on ADHD might help us understand the needs of students who struggled with attention	

Intervention Strategies	• I invited the teacher to share his views on the ways to support students with attention difficulties • The teacher shared • I recognised the teacher's answers • I explained the various types of intervention strategies, including whole class strategies	10
Whole Class Strategies	• I briefly introduced the various types of whole class strategies • I acknowledged the teacher's participation • I briefly explained again the goals in the second session	3
Total Time		60

Session 2:

Themes	Activities	Mins
Introduction	• I introduced the overview of the second session	1
Recapture of major concepts	• I used a question and answer method with the teacher to revisit the major concepts discussed in Session 1	5

Whole class strategies	• I explained in details the following types of whole class strategies and related the strategies with the psychological concepts discussed in Session 1, a question and answer method was used to increase interaction in the process
	  o Classroom environment
	  o Seating arrangement
	  o Learning tasks
	  o Teaching and learning approach
	  o Reinforcements
		30

Discussion on the strategies to be used	• I invited the teacher to share his views on the strategies that he would like to try out or to use more in this research project • I discussed with the teacher and made discussions on the strategies to be used	10
Role of Attention	• I acknowledged the teacher's participation • I reminded the teacher to start using the Whole Class Strategies on the next school day	1
Total Time		47

Appendix 7. Observation Schedule and Recording Guideline

Observation Schedule

Phase: _____   Date: _____

Time	W	X	Y	Z	A	Remarks
0'-1'						
1'-2'						
2'-3'						
3'-4'						
4'-5'						
5'-6'						
6'-7'						
7'-8'						
8'-9'						
9'-10'						
10'-11'						
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33'-34'						
34'-35'						
35'-36'						
36'-37'						
37'-38'						
38'-39'						
39'-40'						

Keys on Recording Student Behaviour:

	Codes	Explanations
Shown in Observation Schedule	W	Student Participant W
	X	Student Participant X
	Y	Student Participant Y
	Z	Student Participant Z
To Be Recorded	/	On-task behaviour
	x	Off-task behaviour
	o	Undetermined

Guidelines on Recording Student Behaviour:

- Record a student's behaviour as 'on-task' if he/she is doing the task expected by the teacher in a whole class learning environment, and as 'off-task' if not; otherwise record as 'undetermined'

- Make the record of each student participants' attention behaviour in each 1-minute interval based on his/her behaviour at the moment of time when he/she is observed, rather than on the most frequently occurred behaviour over that one minute

- In the beginning of each 1-minute interval, record W's attention behaviour; and then record X's attention behaviour immediately; and then Y's, Z's

- If it is not very clear whether a student participant is on-task or off-task, take a few more seconds to observe him/her before a decision of the behaviour record is made; if it is still unclear after 10-15 seconds, classify the behaviour as 'undetermined'

- Examples:

| Behaviour	On-task	Off-task	Undeter-mined
Act according to teacher's instruction	✓		
Ignore teacher's instruction		✓	
Answer teacher's question	✓		
Ignore teacher's question		✓	
Respond to classmate's request around learning activities	✓		
Ignore classmate's request around learning activities		✓	
Ask question or seek help around learning activities	✓		
Actively provide assistance to teacher or classmate	✓		
Chat with classmate		✓	
Disturb classmate's learning		✓	
Engage in things that are not expected by the teacher, e.g. gaze at things outside the window, play with scissors or other stationery		✓	
The view of the student's behaviour is blocked			✓
Actively approach teacher or teaching assistant for help and engage in the task on a one-to-one or small group basis	✓		
Do not perform the expected task when teacher or teaching assistant come to provide individual support or monitoring		✓	
Perform the expected task when teacher or teaching assistant come to provide individual support or monitoring			✓

Keys on Recording Classroom Activity:

	Codes	Explanations
Shown in Observation Schedule	A	Classroom Activity
To Be Recorded	K	Teacher talking to the whole class (TALK)
	Q	Teacher using question and answer method of teaching to the whole class (Q&A)
	I	Students working individually without concrete resource support (INDI)
	G	Students working in pair/group without concrete resource support (GP)
	RI	Students working individually with concrete resource support (R+INDI)
	RG	Students working in pair/group with concrete resource support (R+GP)
	P	Procedural activity
	O	Others

Guidelines on Recording Classroom Activity:

- Record the classroom activity according to student participants' learning task that is expected by the teacher at the moment of time when he/she is observed

Appendix 8. Calculations of Percentage of Non-Overlapping Data (PND) and Standard Mean Difference utilising all intervention data points (SMD$_{all}$) using Excel

Formula bar: =COUNTIF(E3:I3,">50.0%")/5

	Phase I			Phase II					Phase III			Phase IV			
	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15
W	28%	50%	48%	70%	80%	83%	86%	70%	60%	60%	80%	93%	90%	83%	90%
X	75%	75%	70%	85%	90%	90%	84%	83%	68%	72%	83%	93%	85%	92%	87%
Y	41%	38%	33%	85%	70%	79%	89%	77%	38%	53%	65%	83%	88%	85%	83%
Z	61%	65%	73%		95%	88%	94%	87%	55%	58%	89%	97%	95%	95%	95%

	Phase I Mean	Phase II Mean	Phase III Mean	Phase IV Mean	I & II diff	II & III diff	I & III diff	III & IV diff	Phase I Min	Max	Phase II Min	Max	Phase III Min	Max	Phase IV Min	Max	Phase I SD	Phase III SD
W	41.9%	77.9%	66.7%	88.7%	35.9%	-11.2%	24.8%	22.0%	28.2%	50.0%	70.0%	86.5%	60.0%	80.0%	82.5%	92.5%	0.119	0.115
X	73.3%	86.3%	73.9%	89.2%	13.0%	-12.4%	0.6%	15.3%	70.0%	75.0%	82.5%	90.0%	67.5%	82.5%	85.0%	92.5%	0.029	0.077
Y	37.3%	79.9%	51.8%	84.4%	42.6%	-28.1%	14.5%	32.6%	32.5%	41.0%	70.0%	89.2%	37.5%	65.0%	82.5%	87.5%	0.044	0.138
Z	66.0%	90.8%	67.5%	95.6%	24.8%	-23.3%	1.4%	28.1%	60.5%	72.5%	86.8%	95.0%	55.0%	89.5%	94.9%	97.4%	0.061	0.191

	Peer Support PND	Whole Class Strategies PND	Peer Support SMD	Whole Class Strategies SMD
W	0.0%")/5	100%	3.01	1.91
X	100%	100%	4.51	1.98
Y	100%	100%	9.74	2.36
Z	100%	100%	4.09	1.47

Note. PND is the percentage of data points during intervention phase that were greater than the maximum value in the pre-intervention baseline phase. For example, for W on Peer Support, all data points in Phase II had values greater than the maximum value in Phase I. PND = 100%.

Formula bar: =F11/R11

	Phase I			Phase II					Phase III			Phase IV			
	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15
W	28%	50%	48%	70%	80%	83%	86%	70%	60%	60%	80%	93%	90%	83%	90%
X	75%	75%	70%	85%	90%	90%	84%	83%	68%	72%	83%	93%	85%	92%	87%
Y	41%	38%	33%	85%	70%	79%	89%	77%	38%	53%	65%	83%	88%	85%	83%
Z	61%	65%	73%		95%	88%	94%	87%	55%	58%	89%	97%	95%	95%	95%

	Phase I Mean	Phase II Mean	Phase III Mean	Phase IV Mean	I & II diff	II & III diff	I & III diff	III & IV diff	Phase I Min	Max	Phase II Min	Max	Phase III Min	Max	Phase IV Min	Max	Phase I SD	Phase III SD
W	41.9%	77.9%	66.7%	88.7%	35.9%	-11.2%	24.8%	22.0%	28.2%	50.0%	70.0%	86.5%	60.0%	80.0%	82.5%	92.5%	0.119	0.115
X	73.3%	86.3%	73.9%	89.2%	13.0%	-12.4%	0.6%	15.3%	70.0%	75.0%	82.5%	90.0%	67.5%	82.5%	85.0%	92.5%	0.029	0.077
Y	37.3%	79.9%	51.8%	84.4%	42.6%	-28.1%	14.5%	32.6%	32.5%	41.0%	70.0%	89.2%	37.5%	65.0%	82.5%	87.5%	0.044	0.138
Z	66.0%	90.8%	67.5%	95.6%	24.8%	-23.3%	1.4%	28.1%	60.5%	72.5%	86.8%	95.0%	55.0%	89.5%	94.9%	97.4%	0.061	0.191

	Peer Support PND	Whole Class Strategies PND	Peer Support SMD	Whole Class Strategies SMD
W	100%	100%	=F11/R11	1.91
X	100%	100%	4.51	1.98
Y	100%	100%	9.74	2.36
Z	100%	100%	4.09	1.47

Note. SMD$_{all}$ is computed by dividing the mean difference by the standard deviation utilising all intervention data points. For example, for using Peer Support with W, difference of mean time-on-task rates in Phases I and II was 35.9%. The standard deviation was 0.119. SMD$_{all}$ = 3.01.

Appendix 9. Process of Quantitative Data Analysis Using SSPA
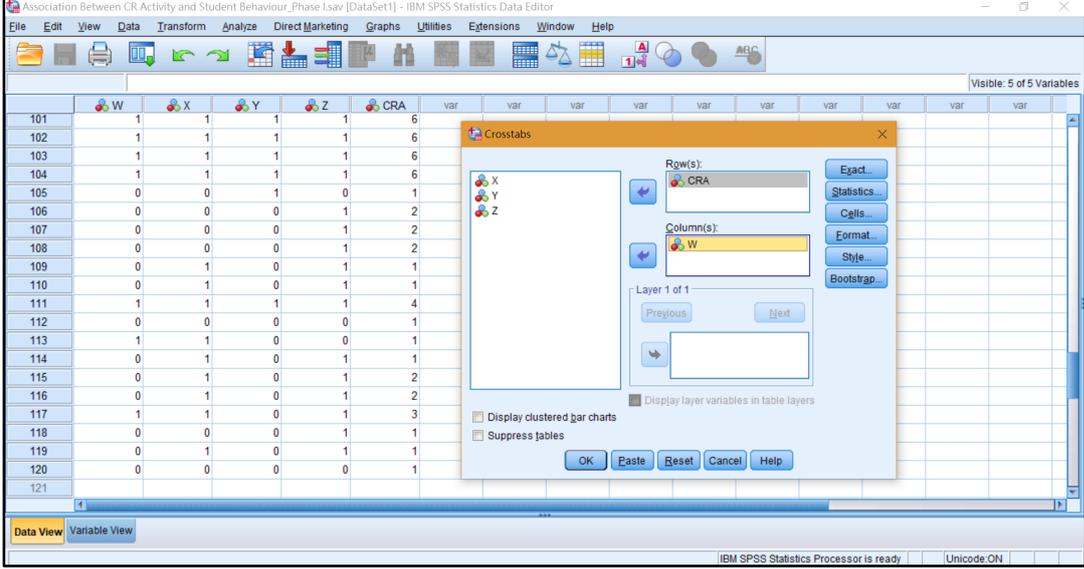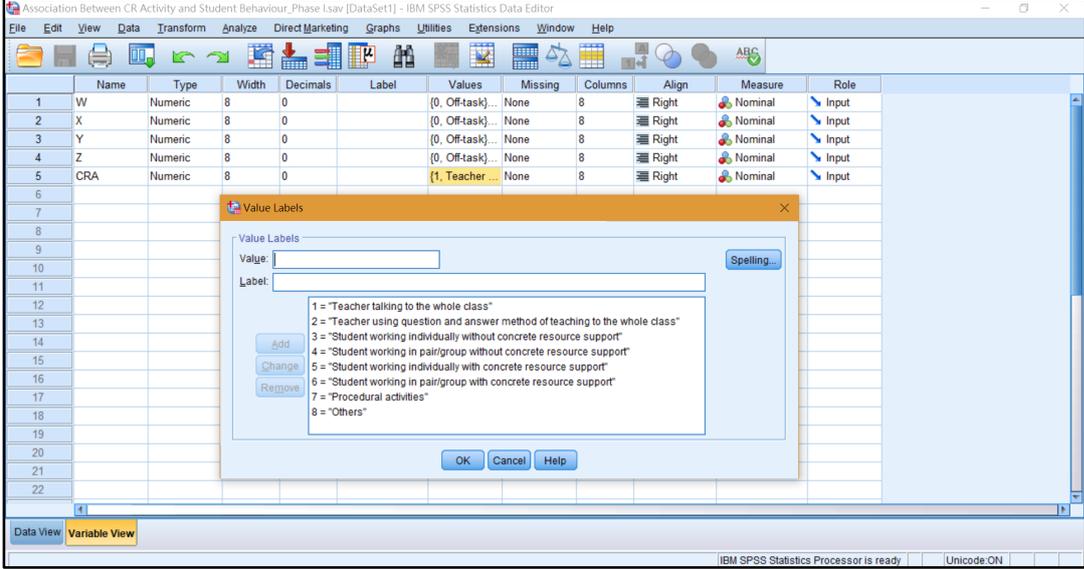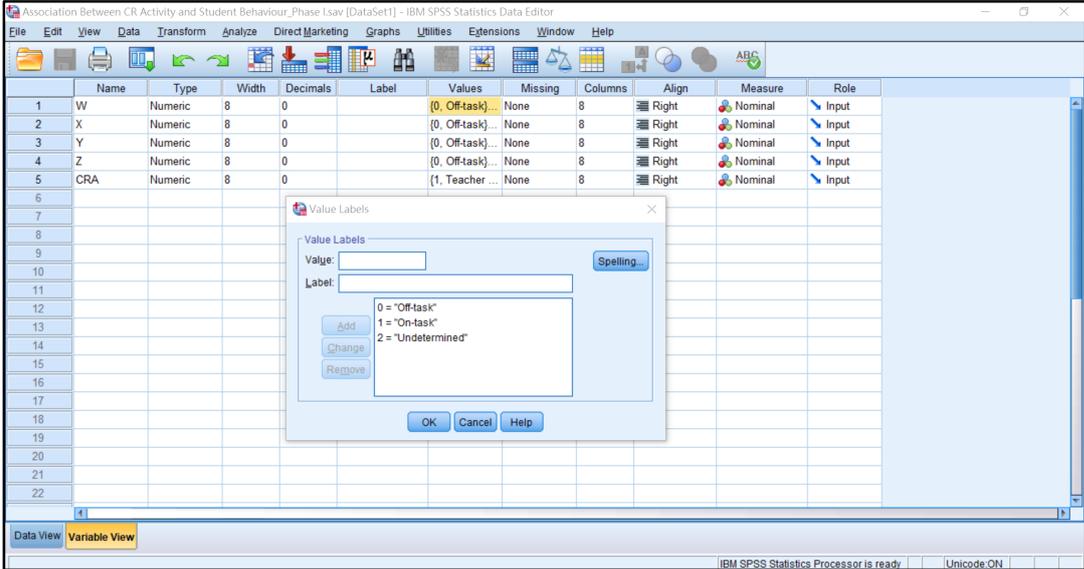
Appendix 10.   Interview Outlines

Interviews with Student Participants on Peer Support

1. Introduction

    - Re-cap of events

        o Before half-term break, signed the consent form, met with me, you told me that you sometimes found it easy to lose attention in class, and you agreed to join this project to help you improve your concentration. Is that right?

        o After half-term break, on a Friday afternoon, you met with me and your peer supporter. Your peer then tried to support you to improve attention in class for about 2 weeks. Is that right?

    - Purpose of this meeting

        o I'd like to know how you feel and how you think about the peer support you received

    - Expectation

        o Please tell me as much as you can

        o As mentioned in the consent form (show it), I'll record our conversations, but you don't need to worry, nobody else would know what you have said. Just say what you want to say.

        o Shall we start now?

2. Before the project started

    - Attention performance

        o Before you took part in this project, that was before half term break, you sometimes found it easy to lose attention in class. Do you remember what things you were doing when you were not paying attention in class?

        o How did you know that you were not paying attention? Did other people tell you about that or you knew it yourself?

        o Who told you about that / How did you know that?

        o F/up

    - Relationship with peer supporter

        o Who was your peer supporter after half-term break?

        o PS (name of the peer supporter) sat next to you before she started to support you, didn't she?

- o Were you and PS good friends before she became your peer supporter?

- o Before PS became your peer supporter, did she ever remind you to stay focus when you lost your attention in class?

- o F/up

3. Peer Support Session

- Recap of process

    - o After half term break, you met with me and PS on a Friday afternoon. 2 other children and your teacher also stayed in that room with us. I showed you these pictures (show the pictures to the child). We talked about your experience of helping other people and other people helping you. We talked about your peer would be supporting you to help you improve your attention in class. We talked about different ways to give friend reminders, including verbal reminders, gesture reminders (show gesture to demonstrate), written reminders, and picture reminders. Then you and PS decided together what type of friend reminder you would like to use. Can you remember these things?

- The process

    - o What type of friendly reminder did you and PS decide to use?

    - o Is it this one? (show his/her card)

    - o Did you and PS make it together?

- Experience

    - o How did you feel about the session on that Friday afternoon?

    - o Did you find that session helpful?

    - o F/up

4. Using the strategy

- The process

    - o After that session PS became your peer supporter for about 2 weeks. Did she try to provide support to you?

    - o How did you do that?

    - o F/up

- Experience

    - o When she showed you this card, what did you think?

    - o How did you feel?

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- o What did you do then?
- o Why did you choose to (the response)?
- o F/up
- o Were there any cases that you thought, felt or responded in some other ways?
- o F/up
- o How often did you (respond in the way mentioned)?
- o PS showed you this card as a friendly reminder to help you concentrate. Had PS ever use any other ways to remind you?
- o How often did you (respond in the way mentioned)?
- o F/up
- o Were there any arguments between PS and you in those 2 weeks about giving the friendly reminders or providing the support?
- o F/up

5. Feedback on using the strategy
   - Do you think your attention in class has changed in those 2 weeks?
   - (if yes) How much had your attention been improved?
   - Do you think receiving friendly reminders from a peer is helpful or not? Prompts: Not at all helpful, Slightly helpful, Moderately helpful (moderately means half and half), Very helpful or Extremely helpful?

6. Withdrawing the strategy
   - The process
     - o After those 2 weeks, I said to you that PS would stop giving you friendly reminders. Did she really stop giving you friendly reminders?
     - o Since then, has she ever use any way to remind you when you lost attention in class?
     - o (if no) F/up questions
   - Attention performance
     - o What do you think about your attention in class after those 2 weeks?
     - o Prompts: after your peer stop supporting you, did your attention continue to be improving or drop again?
     - o F/up questions

7. Overall

- After those 2 weeks of support, what do you think about your relationship with PS?

- Prompt: Are you become better friends, or not so close as before, dislike each other?

- Overall, do you like being supported by your peer to help your attention in class?

- If I ask you to use 3 different words (may be 3 different adjectives) to describe your experience of receiving peer support, which 3 words you would use?

8. Acknowledgement

- Thanks a lot

- What you have told me has helped me understand more about how you feel and how you think about the peer support you have received

Interviews with Student Participants on Whole Class Strategies

1. Introduction

- Purpose of this meeting

  o Last time we talked about how you felt and how you thought about peer support. Today, we'll talk about your attention in class when you're having different types of classroom activities.

- Expectation

  o Please tell me as much as you can

  o As in the last time we met, I'll record our conversations, but you don't need to worry, nobody else would know what you have said. Just say what you want to say.

  o Shall we start now?

2. Types of classroom activities

- Explore different types

  o There are different types of activities in a lesson. For example, sometimes the teacher talks to explain things to you and you are expected to listen, sometimes the teacher asks a question and invite students to answer; you are expected to listen or to give an answer. Can you think of some other activities you have had in a lesson?

  o (F/up to include) sometimes you are asked to work on a task yourself; sometimes you are asked to work on a task together with your peers; sometimes you are provided with concrete resources to work on a task. (Show a paper on which the six types of activities were written down, the last two types 'Procedural activities'

and 'others' are not included; read out each type of classroom activity)

- Comparison
  - We are now going to compare these different types of activities. How was your concentration in class under these types of activities?
  - Prompts: Was your concentration merely the same no matter what type of activity you were having, or did you concentrate better when you were doing certain types of activity?
  - (If not the same, F/up)
    - Can you tell me in which types of activity you concentrated better? You may pick more than one type.
    - Can you tell me why you concentrated better in this type of activity? (name the type of activity one by one)
    - Can you tell me in which types of activity you think you find it is most difficult to concentrate? You may pick more than one type.
    - Can you tell me why you find it harder to concentrate in this type of activity? (name the type of activity one by one)
3. Using Whole Class Strategies
   - Teacher using sign language
     - Your class teacher sometimes uses sign language in class. For example, he claps his hands like this (demonstrate), and he makes a sound with his fingers like this (demonstrate). Do you know the meaning of these sign languages?
     - Prompt: what does it mean?
     - (F/up to mention) When your class teacher wants to explain something to the class or when he wants to ask the class a question, he uses these sign languages to remind all students to focus back to him. Apart from clapping hands and making sounds with the fingers, has your class teacher used some other forms of sign language in the past two weeks?
     - (If yes, F/up) Can you show it to me?
     - What do you think about these sign languages (demonstrate: clapping hands, making sounds with fingers, etc)?

- When you heard or saw these sign languages in the class,

  - What did you think?

  - What did you feel?

  - Then, what did you do?

- Do you think these sign languages are useful to help you focus in class?

- Prompts: Not at all helpful, Slightly helpful, Moderately helpful (moderately means half and half), Very helpful, Extremely helpful

- Why?

- Students using sign language

  - Your class teacher sometimes asks a question to the class and wants all children to give their answers. He has asked all children to use thumbs up or thumbs down to show their answers. Can you remember that?

  - (F/up) What do you think about this type of sign language?

  - Do you think it is useful to help you concentrate in class?

  - Prompts: Not at all helpful, Slightly helpful, Moderately helpful (moderately means half and half), Very helpful, Extremely helpful

  - Why?

4. Acknowledgement

- Thanks a lot

- What you have told me has helped me understand more about how you feel and how you think about the ways that can support you to concentrate better in class

Interview with the Class Teacher

1. Introduction

- Purpose of this meeting

  - Thank you for joining this research project

  - I'd like to know how you feel and how you think about the two intervention strategies we implemented

- Expectation

  - Please tell me as much as you can

  - As mentioned in the consent form (show it), I'll record our conversations, but you don't need to worry, nobody

else would know what you have said. Just say what you want to say.

- o Shall we start now?

2. Student participants' attention performance before this project

- I understand that W, X, Y and Z struggled with attention in class before this research project started.

- Would you tell me how their attention in class looked like? You may talk about their attention one by one.

- (Prompt) For example, what they were doing when they lost their attention in class?

3. Views on the peer support

- Recap of events

  - o After half-term break we had a session with the participating children and their peer supporters, and we guided them how to use the strategies. We then have the strategy Peer Support implemented for about two weeks.

- Before this project

  - o Have you heard of this type of intervention strategy Peer Support or think of this type of intervention strategy before this research project started?

  - o If yes, have you tried this strategy?

  - o F/up questions

- Implementing this type of support

  - o Finding peer supporters

    - Before we started providing the peer support, you had helped to find suitable students to become their peer supporters.

    - Can you tell me what were your considerations in inviting students to become the peer supporters?

    - Were there any difficulties in finding suitable peer supporters?

    - What did you do then?

  - o Peer Support session

    - We had a session to meet with the students in need and his/her peer supporters.

    - How do you think about that session?

    - Do you think that session is helpful or not helpful in implementing the intervention strategy Peer Support?

- In what way it is helpful or not helpful?
- F/up questions

- Implementing the strategy
  - We have used the strategy Peer Support for about 2 weeks.
  - What do you think about those 4 students' attention in class during that period of time?
  - (Prompt) Were there any changes?
  - Do you think that their (name W, X, Y or Z if not all) changes of attention performance in class were related with the intervention strategy Peer Support?
  - Why do you think so?
  - F/up questions
  - Over those 2 weeks, did you meet with the peer supporters to talk about the support they gave?
  - Did you do anything for the peer supporters or with the peer supporters in relation to the intervention strategy?
  - F/up questions
  - Were there any difficulties that you had faced, apart from those you have already mentioned?
  - How did you do then?
  - F/up questions

- Overall,
  - How do you feel about the intervention strategy Peer Support?
  - Do you think this strategy is useful in helping the students in need to improve their attention in class?
  - Can you summarise in what way it is useful or not useful?
  - What do you think about the limitation of this strategy? Are there any limitations?
  - Based on your experience, what are the crucial elements in the implementation of this intervention strategy if we want to make it effective?
  - F/up questions

4. Views on Whole Class Strategies
   - Before this project
     - I first visited the Year 5 class in early October and then I began to systematically observe the class since end of

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October which was after half-term break. I understand that you had started to use some teaching strategies in the class between early October and end of October.

- o Can you tell me what were the teaching strategies that you had started to use or started to use more during that period before half-term break?
- o What had made you decided to use those strategies?
- o How do you feel about using those strategies?
- o What do you think about the impact of those strategies on students' attention?
- o How do you know that?
- o F/up questions

- Recap of events

  - o We had two professional development sessions to talk about the concepts on attention and strategies that we might use to help students improve their concentration in class. In the second session, we decided together what specific strategies were to be used in the next one week. After the sessions, we then have the strategy Whole Class Strategies implemented for about one week.

- Before this project

  - o Have you heard of this type of intervention support or think of this type of intervention support before you participated in this research project?
  - o (If yes) Have you tried this strategy or recommended other teachers to try it?
  - o F/up questions
  - o Do you think those sessions are helpful or not helpful for you to understand how to support students with attention difficulties?
  - o In what way they are helpful or not helpful?
  - o F/up questions

- Implementing the strategy

  - o What specific types of whole class strategies had you used during that one week of intervention?
  - o What was the experience of using these strategies (one by one)?
  - o What do you think about those 4 students' responses and attention in class after you had used this strategy?
  - o (Prompt) Were there any changes?

- o Do you think this intervention strategy is easy or difficult to implement?
- o (Prompt, if not mentioned) Were there any difficulties that you had faced in the implementation process?
- o How did you do then?
- o What do you think about those 4 students' attention in class during that period of time?
- o Do you think that their (name W, X, Y or Z if not all) changes of attention performance in class were related with this strategy?
- o Why do you think so?
- o In order to implement this intervention strategy smoothly or effectively, what things do you think that teachers need?
- o F/up

- About the implementation process of this type of support
  - o Do you think this intervention strategy is easy or difficult to implement?
  - o If no EP is involved in the implementation process, that means only school teachers are involved to take the lead in the process, do you think that teachers are able to take that role? Why?
  - o Based on your experience, if a teacher is going to take that role, what things do you think that the teacher needs in order to implement this intervention strategy smoothly or effectively?
  - o F/up questions
- Overall,
  - o How do you feel about the intervention strategy Whole Class Stretegies?
  - o Do you think this strategy is useful in helping the students in need to improve their attention in class?
  - o Can you summarise in what way it is useful or not useful?
  - o What do you think about the limitation of this strategy? Are there any limitations?
  - o Based on your experience, what are the crucial elements in the implementation of this intervention strategy if we want to make it effective?
  - o F/up questions
5. Overall criteria/considerations in choosing strategies

- When you are thinking about using strategies to support children with attention difficulties, what are the factors that you think most important? That means, what are the most important things that would affect your choice?
- Prompts (if needed): backed up by research findings; other people's recommendations; Head Teacher's request; financial cost; time cost (for preparation); others
- Why?
- F/up questions

6. Acknowledgement
- Thanks a lot
- What you have told me has helped me understand more about using the intervention strategies from the Class Teacher's point of view

Interview with the SENCo

1. Introduction
- Purpose of this meeting
    - Thank you for joining this research project
    - I'd like to know how you feel and how you think about the two intervention strategies we implemented
- Expectation
    - Please tell me as much as you can
    - As mentioned in the consent form (show it), I'll record our conversations, but you don't need to worry, nobody else would know what you have said. Just say what you want to say.
    - Shall we start now?

2. Views on Peer Support
- Recap of events
    - After half-term break we had a session with the participating children and their peer supporters, and we guided them how to use the strategies. We then have the strategy Peer Support implemented for about two weeks.
- Before this project
    - Have you heard of this type of intervention support or think of this type of intervention support before this research project?

- o If yes, have you tried this strategy or recommended other teachers to try?
- o F/up questions
- Implementing this type of support
  - o Finding peer supporters
    - Before we started providing the peer support, you and XX (Class Teacher) had helped to find suitable students to become their peer supporters.
    - How was that process take place?
    - Do you know / Can you tell me what were the considerations in inviting students to become the peer supporters?
    - Were there any difficulties in finding suitable peer supporters?
    - What did you/XX do then?
  - o Peer Support session
    - We had a session to meet with the students in need and his/her peer supporters.
    - How do you think about that session?
    - Do you think that session is helpful or not helpful in implementing the intervention strategy Peer Support?
    - In what way it is helpful or not helpful?
    - F/up questions
  - o F/up questions
  - o Do you have any idea about how the strategy had been implemented?
  - o F/up questions
  - o Were there any difficulties that you had experienced when the strategy Peer Support was implemented?
  - o F/up questions
- Implementing the strategy
  - o Do you have any idea if those 4 students' attention in class had changed during that period of time?
  - o F/up questions
  - o If this strategy is to be implemented again by you and your colleagues, are there any difficulties that you foresee?
  - o F/up questions

3. Views on Whole Class Strategies

- Recap of events
    - I had two professional development sessions with XX to talk about the concepts on attention and strategies that we might use to help students improve their concentration in class. I understood that you're not able to attend the full sessions. After the sessions, we then have the strategy Whole Class Strategies implemented for about one week.

- Before this project
    - Have you heard of this type of intervention support or think of this type of intervention support before you participated in this research project?
    - (If yes) Have you tried this strategy or recommended other teachers to try it?
    - F/up questions

- Implementing this type of support
    - What do you think about the professional development sessions (based on what she has known about it)?
    - F/up questions
    - Do you have any idea about how the strategies have been implemented?
    - F/up questions
    - Were there any difficulties that you or XX (Class Teacher) had experienced when the whole class strategies were implemented?
    - F/up questions
    - Do you have any idea that whether the strategies were effective or not?
    - F/up questions
    - If this strategy is to be implemented again by you and your colleagues, are there any difficulties that you foresee?
    - F/up questions

4. Overall criteria/considerations in choosing strategies

- When you are thinking about using strategies or recommending intervention strategies for other teachers to use to support children with attention difficulties, what are the factors that you think most important? That means, what are the most important things that would affect your choice?

- Prompts (if needed): backed up by research findings; other people's recommendations; Head Teacher's request; financial cost; time cost (for preparation); others

- Why?

- F/up questions

5. Acknowledgement

- Thanks a lot

- What you have told me has helped me understand more about using the intervention strategies from the SENCo's point of view

Appendix 11.   Process of Thematic Analysis Using NVivo

Generating Initial Codes:

Samples of Initial Codes Generated:

Nodes\\"You can do it"
Nodes\\a feasible strategy
Nodes\\a pastoral side
Nodes\\a quick little reminder
Nodes\\a session begin it
Nodes\\a sound knowledge of your children
Nodes\\able to change
Nodes\\able to enforce
Nodes\\about the same
Nodes\\absolutely fine
Nodes\\actively realising
Nodes\\actual activity the tools were fine
Nodes\\actual specific strategies
Nodes\\actually listening to the actual task
Nodes\\all given time to speak
Nodes\\all of their attention's improved
Nodes\\always ways to find time
Nodes\\amount of reminders I had given
Nodes\\an idea of what their role
Nodes\\appreciate everyone
Nodes\\appropriate
Nodes\\as well as
Nodes\\asking for further advice
Nodes\\attention could be for few more minutes
Nodes\\attention improved

Nodes\\attention is very low
Nodes\\aware
Nodes\\aware of
Nodes\\awareness
Nodes\\awareness of the children
Nodes\\background knowledge
Nodes\\background theory
Nodes\\being flexible
Nodes\\being precise
Nodes\\benefited from a longer time period to implement it
Nodes\\better coping strategies
Nodes\\better understand them
Nodes\\big staff turnover
Nodes\\break down instructions
Nodes\\break down tasks
Nodes\\breaking down task
Nodes\\breaking down the activities into smaller chunks
Nodes\\build their knowledge
Nodes\\builds their confidence
Nodes\\can't admire
Nodes\\can't do a generic for everyone
Nodes\\challenging effect
Nodes\\checklist
Nodes\\child who is struggling with attention
Nodes\\children are attached to something

Nodes\\children were in their right places	Nodes\\definitely room for improvement
Nodes\\choosing different peers	Nodes\\depends on the age
Nodes\\clapping my hands	Nodes\\depends on the child
Nodes\\class dynamics	Nodes\\depends on the children
Nodes\\classroom environment	Nodes\\depends on the individual teacher
Nodes\\close proximity	Nodes\\Developing as learners
Nodes\\coaching	Nodes\\didn't really support
Nodes\\combination of the strategies	Nodes\\different strategies would work with different children
Nodes\\combination of themselves	Nodes\\do it better
Nodes\\come back together	Nodes\\do training
Nodes\\come naturally	Nodes\\doing similar things
Nodes\\concentrate themselves	Nodes\\don't think it's something you could do at the beginning of the year
Nodes\\confidence	
Nodes\\confident	Nodes\\don't think there was any limitations
Nodes\\confused of what they had to do	Nodes\\down with thumbs if they didn't
Nodes\\confused of...their role	Nodes\\easily distracted
Nodes\\consequences	Nodes\\easy
Nodes\\constant reminders of the tasks	Nodes\\effective
Nodes\\constant reminders to stay on task	Nodes\\end goal
Nodes\\could be from other children	Nodes\\engage them
Nodes\\could be from the teacher	Nodes\\enjoyed
Nodes\\could have been more helpful	Nodes\\Every class is different
Nodes\\cut in	Nodes\\Everything else was fairly smooth
Nodes\\definite positives for the peer supporter	Nodes\\everything is fine
Nodes\\definitely	Nodes\\everything was set up
Nodes\\definitely beneficial	Nodes\\explanation

Samples of Transcripts with Coding Stripes at the Initial Stage Using NVivo:

Interview CT

R: Would you tell me how their attention in class looked like before early October when I first visited your class?

CT: Errm I'd say in terms of their concentration they kept on…they stayed on task. They'd only focus for… a few minutes. And there were constant reminders of the tasks…err we're doing this we're not doing this…Err so yer, it was…it ultimately had a real effect on their learning.

R: Em. We've talked about their behaviour or their attention in class before this project started. You may talk about their behaviour one by one. You may talk about their names because when I do the transcription I'll use codes to replace them.

CT: No problem. That's fine. In terms of Y,…she's very much……Y and Z they're similar so I'll talk about them together. They're both…errm they're both……attention is very low for them. Virtually two minutes task time. They constantly need..need reminders as well what the task is. Constantly need to be…errm…reminders of…to stay on task as well as what the task is. If not, they do not concentrate. Errm W…errm was similar to them, but…not. He was able to…his attention could be for few more minutes. But they all…they share very similar traits in terms of…their lack of focus…I err…I err…I have a guess as well as…forgetting of what they need to do because they're not concentrated.

R: Em. X?

CT: X? Errm…X is easily..was easily distracted. Errm any…any sort…errm… whereas from his peers which..which have challenging effect.

R: Normally err what they were doing or displaying in class when they lost their attention? You may talk about that as a group or one by one.

CT: I'd say that W and Z were both literally starring, starring into…they could be thinking but then when I ask them trying to get their attention, they were just starring. Errm, same for Y as well. X..it's like as said before very much he's trying to find some...someone to distract him. I'd say that's..that's the main thing.

R: Before this research project or before the time we first met, had you heard of this type of peer support intervention err to help children with attention difficulties?

CT: Yes. Yes, I've used it…I think…no, no, I'm sorry. I've heard..I know this strategy in terms of peer support but not in terms of..for attention. So, no I haven't heard about it before but I've used similar tactics to generally help them in scaffolding.

R: Em you mean support for..learning?

CT: Yes, for the learning.

R: But not target for students with attention difficulties.

CT: No, no.

R: Yep. And before we started providing the peer support, you and SC had helped to find suitable students to become peer supporters.

CT: Yes.

R: Can you tell me what were the factors or what were your considerations in inviting students to become peer supporters?

CT: First, they have to be in close proximity..to err to the child..the child. I err I didn't say it had to be..it's not right next to them. I involved a mixture of strong individuals who

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Coding Density

constant reminders of the tasks

constant reminders to stay on task

trying to find some...someone to distract him

ultimately had a real effect on their learning

strategies that I knew but maybe I've forgotten
breaking down the activities into smaller chunks
impact on myself was very minimal
I had to remind the children of on task behaviour
I had to remind the peer supporters of their roles
transferred from a longer time period to implement it
the time researching and thinking about the strategy
their own distractions with their friends and things
different strategies would work with different children
improving the attention of all the children in the class
will continue to use them after the project has finished
previous teachers, things that have worked well with them
verbally...or visual..or..written one
strong individuals
opportunities of before, during and after the coaching sessions
talking through the possible strategies that we could then implement
initial training of the children in terms of the showing of the thumbs
it helps obviously the children who are trying to improve their frustration
realizing that other people that are in that classroom are following those strategies

possible pros and cons of those strategies
understand who works well with each of them
know who can provide that peer support role
scaffolding through peer supporting
very much in class
financial implications are very, very little
transferred from understanding of the children
make the children believe it to be important
knows the rules

set good examples..set good examples to all those students had…Can I be specific with their names as well?

R: Yep.

CT: P-Z, very strong.

R: P-Z was supporting…

CT: Z.

R: Z.

CT: Yep. She..errm she is a very strong individual. She is able to…keep..keep keep him on his toes. P-Y is not. She's supporting Y. She's very much as who knows the rules, knows the expectations and is able to enforce that..or reinforce it. With P-W who's supporting W..err was a mixture of…she knows the rules..she..she is a good ambassador such… also works with confidence..and the…X was with P-X..errm..P-X was also similar to she knows the rules and she's able to enforce it with X. Strong individuals who knows the tasks.

R: Em. Were there any difficulties in finding suitable peers for those four students?

CT: I won't think there's any particular difficulties. I think it's very straight.

R: And then just before that strategy was implemented we had a session to meet with the students in need and their supporters. In each session two pairs of students that means four students attended and I led the session and you supported us in carrying out the session.   How do you think about that session?

CT: Errm I felt that the impact wasn't particular strong. I felt it because…I think the children were a little bit confused of…their role…I think in terms of like…P-Z and..PS-W they were a little bit confused of what they had to do but then you very much…you helped them…you gave them the choice as to what…the way to communicate whether it's verbally…or visual..or..written one. I think towards..towards the end they got..they had..they had an idea of what their role was but I feel that they were still a bit confused. It was a case of..they knew what to do but in terms of how to do I think they struggled with and that came on the strategy actually applied we found it wasn't really effective, if that makes sense?

R: Em. And then..

CT: Also but I do feel that the actual activity the tools were fine. I think it was just which I think whether it'd be a lack of comprehension for children whether it'd be a lack of practice to those kinds of doing..that kind of job obviously it was new to them so that would have that effect.

R: Errm..do you feel that session is helpful or not helpful?

CT: The one with..the training session I would say..errm.. I think it could have been more helpful. It could be refined a little bit in terms of the explanations maybe…possibly…maybe a scenario for them to see..to see in practice I think may be a scaffolding in that sense to show them how it could be used.

R: Do mean that err..more..more practical examples?

CT: Yeh I think so more practical examples.

R: And let them discuss err what should be done to take up their roles?

CT: Yeh.

R: Apart from this, any recommendations err to make that session more helpful?

CT: Mmm…yeh I think it was absolutely fine. It was good.

Coding Density

constant reminders of the tasks

realizing that other people that are in that classroom are following those strategies

it helps obviously the children who are trying to improve their frustration

initial training of the children in terms of the showing of the thumbs

talking through the possible strategies that we could then implement

opportunities of before, during and after the coaching sessions

strong individuals

previous teachers..things that have worked well with them

will continue to use them after the project has finished

improving the attention of all the children in the class

constant reminders to stay on task

different strategies would work with different children

their own distractions with their friends and things

benefitted from a longer time period to implement it

the time researching and thinking about the strategy

I had to remind the peer supporters of their roles

I had to remind the children of on task behaviour

impact on myself was very minimal

breaking down the activities into smaller chunks

strategies that I knew but maybe I've forgotten

ultimately had a real effect on their learning

trying to find some..someone to distract him

knows the rules

make the children believe it to be important

it's time with understanding of the children

financial implications are very very little

very much in class

scaffolding through peer supporting

know who can provide that peer support role

understand who works well with each of them

possible pros and cons of those strategies

verbally..or visual..or..written one

R: And then we have used this strategy Peer Support for about two weeks.

CT: Yes.

R: What do you think about those four students I mean students in need? Errm what do you think of their attention in class doing that period of time?

CT: Errm I would say there're peaks and troughs...I'd say that……their attention was fine but I found that I would step in to remind them more than the actual peer supporters. So I think they..I think may be..on certain days I think was like..P-Z was..she was ok. P-Y was ok. I think P-W didn't..didn't really support W at all. I think P-X was quite good…errm so I think..there..a..errm…but I'd say…if they were taken away, was the..was the….was there be much change in the impact? Possibly not. So I..so I think..I'd say the impact of the peer supporters was low. I'd say low impact.

R: You mean the impact of the Peer Support strategy?

CT: Yes, yes. That's..that's the strategy that you gave them. I think the impact was low because of a mixture of confidence…a mixture of practice…and a mixture of forgetfulness.

R: Errm. Just now you mentioned that you still had to remind them.

CT: Yes.

R: Do you mean that when you remind them that means the peer supporters did not take their roles to remind the students?

CT: Yes, I would..I would say sometimes they did but it was..it was rare. I would say I had to remind the peer supporters of their roles and I had to remind the children of on task behaviour..of..of their attention. So I would say...that's why I say the impact was low.

R: That means during that..those two weeks' time you sometimes had to remind the peer supporters to keep on performing their roles.

CT: Yes. I can't feel like..you can't admire like "You can do it" to everybody.

R: Ya..errm…just now you said that you reminded the peer supporters. Did you remind them in the classroom or in some events..

CT: Err from what..

R: Met with them?

CT: Errm..It wasn't..as a group thing..it was very much..to do…and then it was so…it was very much in class. When I..when I..when I cut in it was very much in a class time. You know just a quick little reminder and then they moved on.

R: Em. That means you gave a little reminder to the peer supporters and then the peer supporters reminded the students?

CT: Yes.

R: Did you find that…err during those two weeks' time..err because just now you mentioned that before the strategy had been implemented you had to remind the students in need very frequently.

CT: Yes.

R: During those two weeks' time do you think..errm when you..when you compare the amount of reminders you'd given..

CT: I'd probably say about the same. Obviously without doing the tally I'm just going on pure memory here I would say about the same. May be less for W. His..his level of attention improved…and X as well actually I think he's slightly improved. Z I'd say

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Coding Density

constant reminders of the tasks
realizing that other people that are in that classroom are following those strategies
it helps obviously the children in terms of the showing of the thumbs
initial training of the children in terms of the showing of the thumbs
talking through the possible strategies that we could then implement
opportunities of before, during and after the coaching sessions
strong individuals
verbally...or visual..or written one
previous teachers, things that have worked well with them
will continue to use them after the project has finished
improving the attention of all the children in the class
constant reminders to stay on task
different strategies would work with different children
their own distractions with their friends and things
the time researching and thinking about the strategy
benefitted from a longer time period to implement it

impact on myself was very minimal
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trying to find some..someone to distract him
knows the rules
make the children believe it to be important
it's time with understanding of the children
financial implications are very, very little

scaffolding through peer supporting
know who can provide that peer support role
understand who works well with each of them
possible pros and cons of those strategies

I had to remind the children of on task behaviour
I had to remind the peer supporters of their roles

very much in class

the same. And for Y I would say the same...in terms of the amount of reminders I had given.

R: The amount of input you gave is the same for Y and Z.

CT: Yes.

R: And in the implementation process of this type of support, were there any difficulties that you had faced?

CT: Errm apart from what I've…in terms of what I've mentioned already in terms of the difficulty in terms of…micromanaging the peer supporters to do their own job but…that wasn't…not a major difficulty. But the…errm…I know..I know..I think the impact on myself was very minimal. Was very minimal..that's..that was obviously one of the positives about it..in terms of it should it should have been…peer led rather than teacher led in that area.

R: Do you feel this intervention strategy easy or difficult to implement?

CT: I think it's easy.

R: If no EP is involved in the..in the implementation process that means only school teachers are involved to take the lead in the process, do you think that teachers are able to do that?

CT: Yes, definitely.

R: Em, definitely. Why?

CT: Err I'd say in terms of it's…it's something that…should come naturally. It's just…I know that many teachers do it in various forms. It's just another method of scaffolding in terms of helping the..helping the children whether with their learning with their attention it's still..scaffolding through…through peer supporting and it's nothing that is necessarily new. But I would say that in terms of the actual specific strategies that you provided in terms of the options that they could do…in terms of the verbal, the written…there…there are extra things which may be not every teacher would be aware of. I think generally yes.

R: And if..if a teacher is going to take that role what thing do you think that the teacher needs in order to implement this strategy smoothly and effectively?

CT: I would say it's very much a case of…err…a need to have a good knowledge of their children. Needs to know who works well with each other. Need to know who can provide that peer support role and for it to be effective…errm…that means come those good interpersonal skills. And get across the importance of what you can do to make the children believe it to be important…and know the value…I think.

R: Em, and overall how do you feel about this strategy?

CT: Errm I think the strategy is absolutely fine I just feel that…they may be needed a bit more time…and more practice before it's actually implemented…and they need to see some examples so that they can go alright…but could be from the teacher or could be from other children who are doing similar things but not necessarily as a role.

R: Do you mean that…err…it'll be better if we have some time for coaching?

CT: Yes, I would say more time to coaching definitely.

R: And then do you think this strategy helpful or not helpful in supporting students in need to improve their attention?

CT: I think it very much depends on the age of..of the students. I would say…maybe from Year 4 onwards? I would say…I think it's all about their development. And in case if they're able to concentrate themselves for that amount of time and it's bulk it's all

Coding Density

possible pros and cons of those strategies
understand who works well with each other

very much in class
financial implications are very very little
it's time with understanding of the children

knows the rules

trying to find some, someone to distract him
ultimately had a real effect on their learning
strategies that I knew but maybe I've forgotten
breaking down the activities into smaller chunks

impact on myself was very minimal

I had to remind the children of on task behaviour
I had to remind the peer supporters of their roles
benefitted from a longer time period to implement it
the time researching and thinking about the strategy
their own distractions with their friends and things
different strategies would work with different children
constant reminders to stay on task
improving the attention of all the children in the class
will continue to use them after the project has finished
previous teachers, things that have worked well with them

strong individuals
opportunities of before, during and after the coaching sessions
talking through the possible strategies that we could then implement
initial training of the children in terms of the showing of the thumbs
it helps obviously the children who are trying to improve their frustration
realizing that other people that are in that classroom are following those strategies
constant reminders of the tasks

scaffolding through peer supporting

know who can provide that peer support role

make the children believe it to be important

verbally, or visual, or written one

about their focus. So I think it's very much…I wouldn't go straight from Year..Year 1. So I would say…towards the end of Year 4 but really Year 5 and 6.

R: That would be more helpful?

CT: Yes. I would say.

R: Can you summarise in what way it is useful?

CT: Errm I would say it's useful in terms of taking…in terms of taking some ownership of…from..of myself…on to the children that help for their…their growing independence…and their communication skills…errm I think it helps obviously the children who are trying to improve their frustration. They're…they're...they should be actively realising where they…are going wrong and where they need to improve and hopefully should become more "Okay". In theory they should remind themselves so…it should be..and then and then the peer support will be taken away. That's..that's..that's the long term goal…really. So I think it's..it would..it helps. There're definite positives for the peer supporter as well as that child who is struggling with attention. The end goal is for him to have better coping strategies with their own self..self-regulation isn't it really?

R: What do you think about the limitation of this strategy?

CT: I think it's just that in terms of the time..that teachers have had outside the class..classroom for the coaching…or just to speak to the children about the activity. I would say that is the major limitation. Errm……yeah I would say everything is fine but that time is the major limitation.

R: Em you think…time is limited and therefore…err it is hard to find some other time in your class...

CT: Precisely. Yes.

R: To coach them.

CT: It's that..it's that outside of classroom time to…which is..which is the concern.

R: Based on your experience what are the crucial elements in the implementation of this intervention strategy? If you want to make it effective?

CT: Yeh I would say…as mentioned before I would say that coaching is a real…I think…children go away the supporters go away…of feeling confident in terms of the task at hand. And then if they could then they had the chance to implement over a longer period of time. Then that..then the impact would be greater. As well as……seeing examples themselves…and…having role playing……or video evidence…or just generally talking through scenario then those things would..would really be better.

R: That means more time to..

CT: More time.

R: To support them?

CT: Yes.

R: And not just one session.

CT: No. I think very much it's supporting them as you go through…for example have a session begin it…gives it a week and then come back together. What..how do you think it went? What could be improved? It's..it's that reflection time...as well.

R: Thank you. And then we move on to the second strategy the Whole Class Strategies.

CT: No problem.

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possible pros and cons of those strategies
understand who works well with each of them
know who can provide that peer support role
scaffolding through peer supporting
very much in class
financial implications are very very little
it's time with understanding of the children
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it helps obviously the children in terms of the showing of the thumbs

Coding Density
constant reminders of the tasks

5A

Generating Initial Themes :

Organising Themes :

Constructing Initial Thematic Networks:
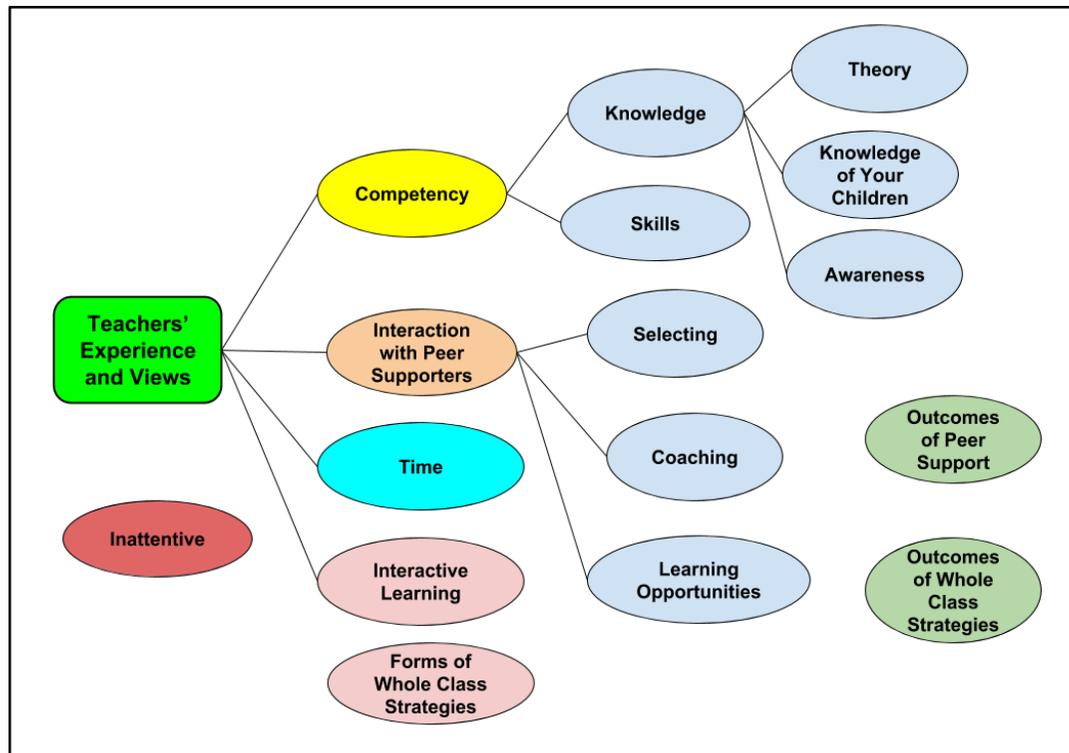
Reviewing, Reorganising & Renaming Themes:

Finalising Themes and Merging Codes into Themes:

Samples of Themes and Codes at the Final Stage:

Nodes\\interactive learning	Nodes\\knowledge\awareness\aware of
Nodes\\interactive learning\break down instructions	Nodes\\knowledge\awareness\extra things
Nodes\\interactive learning\break down tasks	Nodes\\knowledge\awareness\forgotten from their teacher training days
Nodes\\interactive learning\breaking down task	
Nodes\\interactive learning\breaking down the activities into smaller chunks	Nodes\\knowledge\awareness\haven't heard about it
	Nodes\\knowledge\awareness\heard of it
Nodes\\interactive learning\clapping my hands	Nodes\\knowledge\awareness\I know this strategy
Nodes\\interactive learning\come back	Nodes\\knowledge\awareness\I've heard
Nodes\\interactive learning\down with thumbs if they didn't	Nodes\\knowledge\awareness\I've used similar tactics
Nodes\\interactive learning\got them back	Nodes\\knowledge\awareness\made me realize
Nodes\\interactive learning\got them back to focus	Nodes\\knowledge\awareness\maybe..be implementing
Nodes\\interactive learning\have a go	Nodes\\knowledge\awareness\not a thing like a strategy you mentioned
Nodes\\interactive learning\I couldn't understand	
Nodes\\interactive learning\I do then you do	Nodes\\knowledge\awareness\not every teacher would be aware of
Nodes\\interactive learning\middle, not really	Nodes\\knowledge\awareness\not in terms of..for attention
Nodes\\interactive learning\non-verbal cues	Nodes\\knowledge\awareness\nothing that is necessarily new
Nodes\\interactive learning\short tasks that are broken down	Nodes\\knowledge\awareness\nothing was new
Nodes\\interactive learning\show of thumbs	Nodes\\knowledge\awareness\options that they could do
Nodes\\interactive learning\then go through the next part	Nodes\\knowledge\awareness\peer support in terms of talk partners
Nodes\\interactive learning\traffic light system	
Nodes\\interactive learning\Up if they understood	Nodes\\knowledge\awareness\possible barriers to attention
Nodes\\knowledge	Nodes\\knowledge\awareness\possible pros and cons of those strategies
Nodes\\knowledge\awareness	
Nodes\\knowledge\awareness\actual specific strategies	Nodes\\knowledge\awareness\possibly lacked in my strategies
Nodes\\knowledge\awareness\aware	Nodes\\knowledge\awareness\reflection time

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Nodes\\knowledge\awareness\refreshed my understanding	Nodes\\knowledge\their children\it's time with understanding of the children
Nodes\\knowledge\awareness\refreshing	
Nodes\\knowledge\awareness\refreshing session	Nodes\\knowledge\their children\know who can provide that peer support role
Nodes\\knowledge\awareness\remind myself	
Nodes\\knowledge\awareness\reminded myself	Nodes\\knowledge\their children\know who works well with each other
Nodes\\knowledge\awareness\scaffolding through peer supporting	
Nodes\\knowledge\awareness\strategies that I knew but maybe I've forgotten	Nodes\\knowledge\their children\knowing what they like
	Nodes\\knowledge\their children\knowledge of your children
Nodes\\knowledge\awareness\talk partners	Nodes\\knowledge\their children\knows the class better
Nodes\\knowledge\their children	Nodes\\knowledge\their children\need to know your children
Nodes\\knowledge\their children\a sound knowledge of your children	Nodes\\knowledge\their children\needs to be a child on child case
	Nodes\\knowledge\their children\needs to know the children
Nodes\\knowledge\their children\awareness of the children	Nodes\\knowledge\their children\observe them
Nodes\\knowledge\their children\better understand them	Nodes\\knowledge\their children\physical time to spend with the children
Nodes\\knowledge\their children\can't do a generic for everyone	
Nodes\\knowledge\their children\class dynamics	Nodes\\knowledge\their children\Save some notes
Nodes\\knowledge\their children\depends on the child	Nodes\\knowledge\their children\social dynamics
Nodes\\knowledge\their children\depends on the children	Nodes\\knowledge\their children\speak to the parents
Nodes\\knowledge\their children\different strategies would work with different children	Nodes\\knowledge\their children\tailor it to my own children
	Nodes\\knowledge\their children\understand who works well with each of them
Nodes\\knowledge\their children\Every class is different	
Nodes\\knowledge\their children\good knowledge of their children	Nodes\\knowledge\their children\understand your children
Nodes\\knowledge\their children\Home and school need to be doing it together	Nodes\\knowledge\their children\understanding of each child
	Nodes\\knowledge\their children\Understanding of the children
Nodes\\knowledge\their children\home factor	Nodes\\knowledge\their children\Understanding what their triggers are

Samples of Transcripts with Themes and Coding Stripes at the Final Stage Using NVivo:

Interview CT

R: Would you tell me how their attention in class looked like before early October when I first visited your class?

CT: Errm I'd say in terms of their concentration they kept on…they stayed on task. They'd only focus for… a few minutes. And there were constant reminders of the tasks...err we're doing this we're not doing this…Err so yer, it was...it ultimately had a real effect on their learning.

R: Em. We've talked about their behaviour or their attention in class before this project started. You may talk about their behaviour one by one. You may talk about their names because when I do the transcription I'll use codes to replace them.

CT: No problem. That's fine. In terms of Y,…she's very much……Y and Z they're similar so I'll talk about them together. They're both…errm they're both……attention is very low for them. Virtually two minutes task time. They constantly need..need reminders as well what the task is. Constantly need to be…errm…reminders of…to stay on task as well as what the task is. If not, they do not concentrate. Errm W…errm was similar to them, but…not. He was able to…his attention could be for few more minutes. But they all…they share very similar traits in terms of…their lack of focus…I err…I err…I have a guess as well as…forgetting of what they need to do because they're not concentrated.

R: Em. X?

CT: X? Errm…X is easily..was easily distracted. Errm any…any sort…errm… whereas from his peers which..which have challenging effect.

R: Normally err what they were doing or displaying in class when they lost their attention? You may talk about that as a group or one by one.

CT: I'd say that W and Z were both literally starring, starring into…they could be thinking but then when I ask them trying to get their attention, they were just starring. Errm, same for Y as well. X..it's like as said before very much he's trying to find some...someone to distract him. I'd say that's..that's the main thing.

R: Before this research project or before the time we first met, had you heard of this type of peer support intervention err to help children with attention difficulties?

CT: Yes. Yes, I've used it…I think…no, no, I'm sorry. I've heard..I know this strategy in terms of peer support but not in terms of..for attention. So, no I haven't heard about it before but I've used similar tactics to generally help them in scaffolding.

R: Em you mean support for..learning?

CT: Yes, for the learning.

R: But not target for students with attention difficulties.

CT: No, no.

R: Yep. And before we started providing the peer support, you and SC had helped to find suitable students to become peer supporters.

CT: Yes.

R: Can you tell me what were the factors or what were your considerations in inviting students to become peer supporters?

CT: First, they have to be in close proximity..to err to the child..the child. I err I didn't say it had to be..it's not right next to them. I involved a mixture of strong individuals who

Coding Density
coaching
expectations
time
positive outcomes
their children
personal characteristics
not really effective
interactive learning
theories
other benefits
constant reminders of this task
resilacing that other people that are in that classroom are following those strategies
it helps obviously the children who are trying to improve their frustration
initial training of the children in terms of the showing of the thumbs
taking through the possible strategies that we could then implement
opportunities of before, during and after the coaching sessions
strong individuals
verbally..or visual..or..written one
previous teachers, things that have worked well with them
improving the attention of all the children in the class
will continue to use them after the project has finished
different strategies would work with different children
the time researching and thinking about the strategy
their own distractions with their friends and things
benefited from a longer time period to implement it
I had to remind the peer supporters of their roles
impact on myself was very minimal
I had to remind the children of on task behaviour
breaking down the activities into smaller chunks
strategies that I knew but maybe I've forgotten

constant reminders to stay on task

awareness

1A

set good examples..set good examples to all those students had…Can I be specific with their names as well?

R: Yep.

CT: P-Z, very strong.

R: P-Z was supporting…

CT: Z.

R: Z.

CT: Yep. She..errm she is a very strong individual. She is able to…keep..keep keep him on his toes. P-Y is not. She's supporting Y. She's very much as who knows the rules, knows the expectations and is able to enforce that..or reinforce it. With P-W who's supporting W..err was a mixture of…she knows the rules..she..she is a good ambassador such… also works with confidence..and the…X was with P-X..errm..P-X was also similar to she knows the rules and she's able to enforce it with X. Strong individuals who knows the tasks.

R: Em. Were there any difficulties in finding suitable peers for those four students?

CT: I won't think there's any particular difficulties. I think it's very straight.

R: And then just before that strategy was implemented we had a session to meet with the students in need and their supporters. In each session two pairs of students that means four students attended and I led the session and you supported us in carrying out the session.   How do you think about that session?

CT: Errm I felt that the impact wasn't particular strong. I felt it because…I think the children were a little bit confused of…their role…I think in terms of like…P-Z and..P-W they were a little bit confused of what they had to do but then you very much…you helped them…you gave them the choice as to what…the way to communicate whether it's verbally…or visual..or..written one. I think towards..towards the end they got..they had..they had an idea of what their role was but I feel that they were still a bit confused. It was a case of..they knew what to do but in terms of how to do I think they struggled with and that came on the strategy actually applied we found it wasn't really effective, if that makes sense?

R: Em. And then..

CT: Also but I do feel that the actual activity the tools were fine. I think it was just which I think whether it'd be a lack of comprehension for children whether it'd be a lack of practice to those kinds of doing..that kind of job obviously it was new to them so it would have that effect.

R: Errm..do you feel that session is helpful or not helpful?

CT: The one with..the training session I would say..errm.. I think it could have been more helpful. It could be refined a little bit in terms of the explanations maybe…possibly…maybe a scenario for them to see..to see in practice I think may be a scaffolding in that sense to show them how it could be used.

R: Do mean that err..more..more practical examples?

CT: Yeh I think so more practical examples.

R: And let them discuss err what should be done to take up their roles?

CT: Yeh.

R: Apart from this, any recommendations err to make that session more helpful?

CT: Mmm…yeh I think it was absolutely fine. It was good.

Coding Density

coaching

personal characteristics
awareness
their children
positive outcomes
time
expectations

not really effective

verbally...or visual..or written one

strong individuals
opportunities of before, during and after the coaching sessions
talking through the possible strategies that we could them implement
initial training of the children in terms of the showing of the thumbs
it helps obviously the children who are trying to improve their frustration
realizing that other people that are in that classroom are following those strategies
constant reminders of the tasks
other benefits
theories
interactive learning

previous teachers, things that have worked well with them
improving the attention of all the children in the class
will continue to use them after the project has finished
constant reminders to stay on task
different strategies would work with different children
their own distractions with their friends and things
the time researching and thinking about the strategy
benefited from a longer time period to implement it
impact on myself was very minimal
I had to remind the children of on task behaviour
I had to remind myself but maybe I've forgotten
breaking down the activities into smaller chunks
strategies that I knew but maybe I've forgotten

2A

R: And then we have used this strategy Peer Support for about two weeks.

CT: Yes.

R: What do you think about those four students I mean students in need? Errm what do you think of their attention in class doing that period of time?

CT: Errm I would say there're peaks and troughs...I'd say that……their attention was fine but I found that I would step in to remind them more than the actual peer supporters. So I think they..I think may be..on certain days I think was like..P-Z was..she was ok. P-Y was ok. I think P-W didn't..didn't really support W at all. I think P-X was quite good…errm so I think..there..a..errm…but I'd say…if they were taken away, was the..was the….was there be much change in the impact? Possibly not. So I..so I think..I'd say the impact of the peer supporters was low. I'd say low impact.

R: You mean the impact of the Peer Support strategy?

CT: Yes, yes. That's..that's the strategy that you gave them. I think the impact was low because of a mixture of confidence…a mixture of practice…and a mixture of forgetfulness.

R: Errm. Just now you mentioned that you still had to remind them.

CT: Yes.

R: Do you mean that when you remind them that means the peer supporters did not take their roles to remind the students?

CT: Yes, I would..I would say sometimes they did but it was..it was rare. I would say I had to remind the peer supporters of their roles and I had to remind the children of on task behaviour..of..of their attention. So I would say...that's why I say the impact was low.

R: That means during that..those two weeks' time you sometimes had to remind the peer supporters to keep on performing their roles.

CT: Yes. I can't feel like..you can't admire like "You can do it" to everybody.

R: Ya..errm…just now you said that you reminded the peer supporters. Did you remind them in the classroom or in some events..

CT: Err from what..

R: Met with them?

CT: Errm..It wasn't..as a group thing..it was very much..to do…and then it was so…it was very much in class. When I..when I..when I cut in it was very much in a class time. You know just a quick little reminder and then they moved on.

R: Em. That means you gave a little reminder to the peer supporters and then the peer supporters reminded the students?

CT: Yes.

R: Did you find that…err during those two weeks' time..err because just now you mentioned that before the strategy had been implemented you had to remind the students in need very frequently.

CT: Yes.

R: During those two weeks' time do you think..errm when you..when you compare the amount of reminders you'd given..

CT: I'd probably say about the same. Obviously without doing the tally I'm just going on pure memory here I would say about the same. May be less for W. His..his level of attention improved…and X as well actually I think he's slightly improved. Z I'd say

3 / 10

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3A

the same. And for Y I would say the same...in terms of the amount of reminders I had given.

R: The amount of input you gave is the same for Y and Z.

CT: Yes.

R: And in the implementation process of this type of support, were there any difficulties that you had faced?

CT: Errm apart from what I've…in terms of what I've mentioned already in terms of the difficulty in terms of…micromanaging the peer supporters to do their own job but…that wasn't…not a major difficulty. But the…errm…I know..I know..I think the impact on myself was very minimal. Was very minimal..that's..that was obviously one of the positives about it..in terms of it should it should have been…peer led rather than teacher led in that area.

R: Do you feel this intervention strategy easy or difficult to implement?

CT: I think it's easy.

R: If no EP is involved in the..in the implementation process that means only school teachers are involved to take the lead in the process, do you think that teachers are able to do that?

CT: Yes, definitely.

R: Em, definitely. Why?

CT: Err I'd say in terms of it's…it's something that…should come naturally. It's just…I know that many teachers do it in various forms. It's just another method of scaffolding in terms of helping the..helping the children whether with their learning with their attention it's still..scaffolding through…through peer supporting and it's nothing that is necessarily new. But I would say that in terms of the actual specific strategies that you provided in terms of the options that they could do…in terms of the verbal, the written…there…there are extra things which may be not every teacher would be aware of. I think generally yes.

R: And if..if a teacher is going to take that role what thing do you think that the teacher needs in order to implement this strategy smoothly and effectively?

CT: I would say it's very much a case of…err…a need to have a good knowledge of their children. Needs to know who works well with each other. Need to know who can provide that peer support role and for it to be effective…errm…that means come those good interpersonal skills. And get across the importance of what you can do to make the children believe it to be important…and know the value…I think.

R: Em, and overall how do you feel about this strategy?

CT: Errm I think the strategy is absolutely fine I just feel that…they may be needed a bit more time…and more practice before it's actually implemented…and they need to see some examples so that they can go alright…but could be from the teacher or could be from other children who are doing similar things but not necessarily as a role.

R: Do you mean that…err…it'll be better if we have some time for coaching?

CT: Yes, I would say more time to coaching definitely.

R: And then do you think this strategy helpful or not helpful in supporting students in need to improve their attention?

CT: I think it very much depends on the age of..of the students. I would say…maybe from Year 4 onwards? I would say…I think it's all about their development. And in case if they're able to concentrate themselves for that amount of time and it's bulk it's all

4 / 10

Coding Density

expectations

positive outcomes

coaching

time

not really effective

interactive learning

theories

other benefits

constant reminders of their tasks

realizing that other people that are in that classroom are following those strategies

it helps obviously the children who are trying to improve their attention

initial training of the children in terms of the showing of the thumbs

talking through the possible strategies that we could then implement

opportunities of before, during and after the coaching sessions

strong individuals

previous teachers, things that have worked well with them

improving the attention of all the children in the class

will continue to use them after the project has finished

constant reminders to stay on task

different strategies would work with different children

the time researching and thinking about the strategy

their own distractions with their friends and things

benefited from a longer time period to implement it

I had to remind the peer supporters of their roles

impact on myself was very minimal

strategies that I know but maybe I've forgotten

breaking down the activities into smaller chunks

I had to remind the children of on task behaviour

awareness

their children

personal characteristics

verbally..or visual..or written one

4A

about their focus. So I think it's very much…I wouldn't go straight from Year..Year 1. So I would say…towards the end of Year 4 but really Year 5 and 6.

R: That would be more helpful?

CT: Yes. I would say.

R: Can you summarise in what way it is useful?

CT: Errm I would say it's useful in terms of taking…in terms of taking some ownership of…from..of myself…on to the children that help for their…their growing independence…and their communication skills…errm I think it helps obviously the children who are trying to improve their frustration. They're…they're...they should be actively realising where they…are going wrong and where they need to improve and hopefully should become more "Okay". In theory they should remind themselves so…it should be..and then and then the peer support will be taken away. That's..that's..that's the long term goal…really. So I think it's..it would..it helps. There're definite positives for the peer supporter as well as that child who is struggling with attention. The end goal is for him to have better coping strategies with their own self..self-regulation isn't it really?

R: What do you think about the limitation of this strategy?

CT: I think it's just that in terms of the time..that teachers have had outside the class..classroom for the coaching…or just to speak to the children about the activity. I would say that is the major limitation. Errm……yeah I would say everything is fine but that time is the major limitation.

R: Em you think…time is limited and therefore…err it is hard to find some other time in your class...

CT: Precisely. Yes.

R: To coach them.

CT: It's that..it's that outside of classroom time to…which is..which is the concern.

R: Based on your experience what are the crucial elements in the implementation of this intervention strategy? If you want to make it effective?

CT: Yeh I would say…as mentioned before I would say that coaching is a real…I think…children go away the supporters go away…of feeling confident in terms of the task at hand. And then if they could then they had the chance to implement over a longer period of time. Then that..then the impact would be greater. As well as……seeing examples themselves…and…having role playing……or video evidence…or just generally talking through scenario then those things would..would really be better.

R: That means more time to..

CT: More time.

R: To support them?

CT: Yes.

R: And not just one session.

CT: No. I think very much it's supporting them as you go through…for example have a session begin it...gives it a week and then come back together. What..how do you think it went? What could be improved? It's..it's that reflection time...as well.

R: Thank you. And then we move on to the second strategy the Whole Class Strategies.

CT: No problem.

Appendix 12.   Ethics Approval Letter

Sau Yin Lau
Registration number: 150107772
School of Education
Programme: EDUR136 DEdCPsy

Dear Sau Yin

PROJECT TITLE: A Single Case Study on the Impacts of Providing Interventions to Students with Attention Difficulties in a Mainstream Classroom Setting
APPLICATION: Reference Number 013986

On behalf of the University ethics reviewers who reviewed your project, I am pleased to inform you that on 29/06/2017 the above-named project was **approved** on ethics grounds, on the basis that you will adhere to the following documentation that you submitted for ethics review:

- University research ethics application form 013986 (dated 28/06/2017).
- Participant information sheet 1032128 version 2 (28/06/2017).
- Participant information sheet 1032126 version 2 (28/06/2017).
- Participant information sheet 1030832 version 4 (28/06/2017).
- Participant information sheet 1031885 version 4 (28/06/2017).
- Participant information sheet 1031884 version 3 (28/06/2017).
- Participant consent form 1031887 version 3 (28/06/2017).
- Participant consent form 1031886 version 4 (28/06/2017).
- Participant consent form 1030834 version 4 (28/06/2017).

If during the course of the project you need to deviate significantly from the above-approved documentation please inform me since written approval will be required.

Yours sincerely

David Hyatt
Ethics Administrator
School of Education

Appendix 13.   Research Timeline

Research Timeline:

Time	Work
April 2017	• Two school SENCos approached to discuss the possibility of participating in the study • One school SENCo showed initial interest to participate
June 2017	• Ethics application approved
Sept 2017	• Pilot use of the observation schedule with multiple participants carried out
Oct 2017	• Pilot study on Peer Support carried out • Initial visit to the Year 5 class in which potential student participants were staying • Information sheets and consent forms sent • Consent forms returned • Trial baseline observation carried out
30 Oct 2017 to 21 Dec 2017	• Research data collected

Data Collection Timeline:

Week Com-mencing	Monday	Tuesday	Wednesday	Thursday	Friday
30 Oct 2017	• Phase I • Observation	• Phase I • Observation	• Phase I • Observation cancelled	• Phase I • Observation	• Phase I • Observation not arranged • Peer Support Sessions
6 Nov 2017	• Phase II • Observation	• Phase II • Observation cancelled	• Phase II • Observation	• Phase II • Observation cancelled	• Phase II • Observation not arranged
13 Nov 2017	• Phase II • Observation not arranged	• Phase II • Observation	• Phase II • Observation	• Phase II • Observation	• Phase III • Observation not arranged
20 Nov 2017	• Phase III • Observation cancelled	• Phase III • Observation cancelled	• Phase III • Observation cancelled	• Phase III • Observation cancelled	• Phase III • Observation not arranged
27 Nov 2017	• Phase III • Observation cancelled	• Phase III • Observation	• Phase III • Observation	• Phase III • Observation cancelled	• Phase III • Observation not arranged

Week Com- mencing	Monday	Tuesday	Wednesday	Thursday	Friday
4 Dec 2017	• Phase III • Observation • Professional Development Session 1	• Interviews with student participants • Professional Development Session 2	• Phase IV • Observation not arranged	• Phase IV • Observation	• Phase IV • Observation not arranged
11 Dec 2017	• Phase IV • Observation	• Phase IV • Observation	• Phase IV • Observation	• Phase V • Observation cancelled	• Phase V • Observation not arranged
18 Dec 2017	• Phase V • Observation cancelled	• Phase V • Observation cancelled	• Phase V • Observation cancelled • Interviews with student participants	• Interviews with teacher participants	School Holiday

Remarks:

Phase I: Baseline
Phase II: Implementing Peer Support
Phase III: Baseline, Peer Support withdrawn
Phase IV: Implementing Whole Class Strategies
Phase V: Baseline, Whole Class Strategies withdrawn

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Appendix 14.   SSPA Analysis Output Before Data Filtering

```
CROSSTABS
  /TABLES=CRA BY W
  /FORMAT=AVALUE TABLES
  /STATISTICS=CHISQ PHI
  /CELLS=COUNT EXPECTED ASRESID
  /COUNT ROUND CELL.
```

Crosstabs

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
CRA * W	120	100.0%	0	0.0%	120	100.0%

CRA * W Crosstabulation

			W			Total
			Off-task	On-task	Undetermined	
CRA	Teacher talking to the whole class	Count	16	2	0	18
		Expected Count	10.4	7.5	.2	18.0
		Adjusted Residual	2.9	-2.9	-.4	
	Teacher using question and answer method of teaching to the whole class	Count	47	14	0	61
		Expected Count	35.1	25.4	.5	61.0
		Adjusted Residual	4.4	-4.2	-1.0	
	Student working individually without concrete resource support	Count	4	4	0	8
		Expected Count	4.6	3.3	.1	8.0
		Adjusted Residual	-.4	.5	-.3	
	Student working in pair/group without concrete resource support	Count	1	3	1	5
		Expected Count	2.9	2.1	.0	5.0
		Adjusted Residual	-1.7	.8	4.8	
	Student working individually with concrete resource support	Count	0	1	0	1
		Expected Count	.6	.4	.0	1.0
		Adjusted Residual	-1.2	1.2	-.1	
	Student working in pair/group with concrete resource support	Count	1	25	0	26
		Expected Count	15.0	10.8	.2	26.0
		Adjusted Residual	-6.3	6.4	-.5	
	Procedural activities	Count	0	1	0	1
		Expected Count	.6	.4	.0	1.0
		Adjusted Residual	-1.2	1.2	-.1	
Total		Count	69	50	1	120
		Expected Count	69.0	50.0	1.0	120.0

Page 1

Note. CRA denotes classroom activity

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Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	75.464[a]	12	.000
Likelihood Ratio	66.142	12	.000
Linear-by-Linear Association	49.341	1	.000
N of Valid Cases	120		

a. 15 cells (71.4%) have expected count less than 5. The minimum expected count is .01.

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	.793	.000
	Cramer's V	.561	.000
N of Valid Cases		120	

```
CROSSTABS
  /TABLES=CRA BY X
  /FORMAT=AVALUE TABLES
  /STATISTICS=CHISQ PHI
  /CELLS=COUNT EXPECTED ASRESID
  /COUNT ROUND CELL.
```

Crosstabs

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
CRA * X	120	100.0%	0	0.0%	120	100.0%

CRA * X Crosstabulation

			X Off-task	X On-task	Total
CRA	Teacher talking to the whole class	Count	10	8	18
		Expected Count	4.8	13.2	18.0
		Adjusted Residual	3.0	-3.0	
	Teacher using question and answer method of teaching to the whole class	Count	17	44	61
		Expected Count	16.3	44.7	61.0
		Adjusted Residual	.3	-.3	
	Student working individually without concrete resource support	Count	1	7	8
		Expected Count	2.1	5.9	8.0
		Adjusted Residual	-.9	.9	
	Student working in pair/group without concrete resource support	Count	1	4	5
		Expected Count	1.3	3.7	5.0
		Adjusted Residual	-.3	.3	
	Student working individually with concrete resource support	Count	0	1	1
		Expected Count	.3	.7	1.0
		Adjusted Residual	-.6	.6	
	Student working in pair/group with concrete resource support	Count	2	24	26
		Expected Count	6.9	19.1	26.0
		Adjusted Residual	-2.5	2.5	
	Procedural activities	Count	1	0	1
		Expected Count	.3	.7	1.0
		Adjusted Residual	1.7	-1.7	
Total		Count	32	88	120
		Expected Count	32.0	88.0	120.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	16.562[a]	6	.011
Likelihood Ratio	17.126	6	.009
Linear-by-Linear Association	7.379	1	.007
N of Valid Cases	120		

a. 8 cells (57.1%) have expected count less than 5. The minimum expected count is .27.

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Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	.372	.011
	Cramer's V	.372	.011
N of Valid Cases		120	

```
CROSSTABS
  /TABLES=CRA BY Y
  /FORMAT=AVALUE TABLES
  /STATISTICS=CHISQ PHI
  /CELLS=COUNT EXPECTED ASRESID
  /COUNT ROUND CELL.
```

Crosstabs

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
CRA * Y	120	100.0%	0	0.0%	120	100.0%

CRA * Y Crosstabulation

			Y			Total
			Off-task	On-task	Undetermined	
CRA	Teacher talking to the whole class	Count	16	1	1	18
		Expected Count	11.1	6.6	.3	18.0
		Adjusted Residual	2.6	-3.0	1.4	
	Teacher using question and answer method of teaching to the whole class	Count	52	8	1	61
		Expected Count	37.6	22.4	1.0	61.0
		Adjusted Residual	5.4	-5.4	.0	
	Student working individually without concrete resource support	Count	2	6	0	8
		Expected Count	4.9	2.9	.1	8.0
		Adjusted Residual	-2.2	2.3	-.4	
	Student working in pair/group without concrete resource support	Count	1	4	0	5
		Expected Count	3.1	1.8	.1	5.0
		Adjusted Residual	-2.0	2.1	-.3	
	Student working individually with concrete resource support	Count	0	1	0	1
		Expected Count	.6	.4	.0	1.0
		Adjusted Residual	-1.3	1.3	-.1	

CRA * Y Crosstabulation

			Off-task	On-task	Undetermined	Total
				Y		
Student working in pair/group with concrete resource support	Count		3	23	0	26
	Expected Count		16.0	9.5	.4	26.0
	Adjusted Residual		-5.9	6.2	-.8	
Procedural activities	Count		0	1	0	1
	Expected Count		.6	.4	.0	1.0
	Adjusted Residual		-1.3	1.3	-.1	
Total	Count		74	44	2	120
	Expected Count		74.0	44.0	2.0	120.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	65.916[a]	12	.000
Likelihood Ratio	70.960	12	.000
Linear-by-Linear Association	40.616	1	.000
N of Valid Cases	120		

a. 15 cells (71.4%) have expected count less than 5. The minimum expected count is .02.

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	.741	.000
	Cramer's V	.524	.000
N of Valid Cases		120	

```
CROSSTABS
  /TABLES=CRA BY Z
  /FORMAT=AVALUE TABLES
  /STATISTICS=CHISQ PHI
  /CELLS=COUNT EXPECTED ASRESID
  /COUNT ROUND CELL.
```

Crosstabs

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
CRA * Z	120	100.0%	0	0.0%	120	100.0%

CRA * Z Crosstabulation

			Z			Total
			Off-task	On-task	Undetermined	
CRA	Teacher talking to the whole class	Count	9	9	0	18
		Expected Count	6.0	11.7	.3	18.0
		Adjusted Residual	1.6	-1.4	-.6	
	Teacher using question and answer method of teaching to the whole class	Count	25	35	1	61
		Expected Count	20.3	39.7	1.0	61.0
		Adjusted Residual	1.8	-1.8	.0	
	Student working individually without concrete resource support	Count	3	5	0	8
		Expected Count	2.7	5.2	.1	8.0
		Adjusted Residual	.3	-.2	-.4	
	Student working in pair/group without concrete resource support	Count	1	4	0	5
		Expected Count	1.7	3.3	.1	5.0
		Adjusted Residual	-.6	.7	-.3	
	Student working individually with concrete resource support	Count	0	1	0	1
		Expected Count	.3	.7	.0	1.0
		Adjusted Residual	-.7	.7	-.1	
	Student working in pair/group with concrete resource support	Count	2	23	1	26
		Expected Count	8.7	16.9	.4	26.0
		Adjusted Residual	-3.1	2.8	1.0	
	Procedural activities	Count	0	1	0	1
		Expected Count	.3	.7	.0	1.0
		Adjusted Residual	-.7	.7	-.1	
Total		Count	40	78	2	120
		Expected Count	40.0	78.0	2.0	120.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	13.893[a]	12	.308
Likelihood Ratio	16.802	12	.157
Linear-by-Linear Association	12.760	1	.000
N of Valid Cases	120		

a. 14 cells (66.7%) have expected count less than 5. The minimum expected count is .02.

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	.340	.308
	Cramer's V	.241	.308
N of Valid Cases		120	

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Appendix 15. Process of Data Filtering Using SSPA

Appendix 16.   SSPA Analysis Output After Data Filtering

```
USE ALL.
COMPUTE filter_$=(W <= 1 and (CRA = 1 or CRA = 2 or CRA = 6)).
VARIABLE LABELS filter_$ 'W <= 1 and (CRA = 1 or CRA = 2 or CRA = 6) (FILTER)'.
VALUE LABELS filter_$ 0 'Not Selected' 1 'Selected'.
FORMATS filter_$ (f1.0).
FILTER BY filter_$.
EXECUTE.
CROSSTABS
  /TABLES=CRA BY W
  /FORMAT=AVALUE TABLES
  /STATISTICS=CHISQ PHI
  /CELLS=COUNT EXPECTED ASRESID
  /COUNT ROUND CELL.
```

Crosstabs

[DataSet2] C:\Users\User\Google Drive_Research\Data Analysis\Quantitative Data Analysi
s\Association Between CR Activity and Student Behaviour_Phase I_filtered.sav

Case Processing Summary

		Cases				
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
CRA * W	105	100.0%	0	0.0%	105	100.0%

CRA * W Crosstabulation

			W		Total
			Off-task	On-task	
CRA	Teacher talking to the whole class	Count	16	2	18
		Expected Count	11.0	7.0	18.0
		Adjusted Residual	2.7	-2.7	
	Teacher using question and answer method of teaching to the whole class	Count	47	14	61
		Expected Count	37.2	23.8	61.0
		Adjusted Residual	4.0	-4.0	
	Student working in pair/group with concrete resource support	Count	1	25	26
		Expected Count	15.8	10.2	26.0
		Adjusted Residual	-6.9	6.9	
Total		Count	64	41	105
		Expected Count	64.0	41.0	105.0

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Note. CRA denotes classroom activity

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Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	48.168[a]	2	.000
Likelihood Ratio	53.727	2	.000
Linear-by-Linear Association	47.502	1	.000
N of Valid Cases	105		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 7.03.

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	.677	.000
	Cramer's V	.677	.000
N of Valid Cases		105	

```
USE ALL.
COMPUTE filter_$=(X <= 1 and (CRA = 1 or CRA = 2 or CRA = 6)).
VARIABLE LABELS filter_$ 'X <= 1 and (CRA = 1 or CRA = 2 or CRA = 6) (FILTER)'.
VALUE LABELS filter_$ 0 'Not Selected' 1 'Selected'.
FORMATS filter_$ (f1.0).
FILTER BY filter_$.
EXECUTE.
CROSSTABS
  /TABLES=CRA BY X
  /FORMAT=AVALUE TABLES
  /STATISTICS=CHISQ PHI
  /CELLS=COUNT EXPECTED ASRESID
  /COUNT ROUND CELL.
```

Crosstabs

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
CRA * X	105	100.0%	0	0.0%	105	100.0%

CRA * X Crosstabulation

| | | | X | | |
			Off-task	On-task	Total
CRA	Teacher talking to the whole class	Count	10	8	18
		Expected Count	5.0	13.0	18.0
		Adjusted Residual	2.9	-2.9	
	Teacher using question and answer method of teaching to the whole class	Count	17	44	61
		Expected Count	16.8	44.2	61.0
		Adjusted Residual	.1	-.1	
	Student working in pair/group with concrete resource support	Count	2	24	26
		Expected Count	7.2	18.8	26.0
		Adjusted Residual	-2.6	2.6	
Total		Count	29	76	105
		Expected Count	29.0	76.0	105.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	12.193[a]	2	.002
Likelihood Ratio	12.736	2	.002
Linear-by-Linear Association	9.038	1	.003
N of Valid Cases	105		

a. 1 cells (16.7%) have expected count less than 5. The minimum expected count is 4.97.

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	.341	.002
	Cramer's V	.341	.002
N of Valid Cases		105	

```
USE ALL.
COMPUTE filter_$=(Y <= 1 and (CRA = 1 or CRA = 2 or CRA = 6)).
VARIABLE LABELS filter_$ 'Y <= 1 and (CRA = 1 or CRA = 2 or CRA = 6) (FILTER)'.
VALUE LABELS filter_$ 0 'Not Selected' 1 'Selected'.
FORMATS filter_$ (f1.0).
FILTER BY filter_$.
EXECUTE.
CROSSTABS
```

```
/TABLES=CRA BY Y
/FORMAT=AVALUE TABLES
/STATISTICS=CHISQ PHI
/CELLS=COUNT EXPECTED ASRESID
/COUNT ROUND CELL.
```

Crosstabs

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
CRA * Y	103	100.0%	0	0.0%	103	100.0%

CRA * Y Crosstabulation

			Y		Total
			Off-task	On-task	
CRA	Teacher talking to the whole class	Count	16	1	17
		Expected Count	11.7	5.3	17.0
		Adjusted Residual	2.5	-2.5	
	Teacher using question and answer method of teaching to the whole class	Count	52	8	60
		Expected Count	41.4	18.6	60.0
		Adjusted Residual	4.6	-4.6	
	Student working in pair/group with concrete resource support	Count	3	23	26
		Expected Count	17.9	8.1	26.0
		Adjusted Residual	-7.3	7.3	
Total		Count	71	32	103
		Expected Count	71.0	32.0	103.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	53.838[a]	2	.000
Likelihood Ratio	54.323	2	.000
Linear-by-Linear Association	52.635	1	.000
N of Valid Cases	103		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.28.

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	.723	.000
	Cramer's V	.723	.000
N of Valid Cases		103	

```
USE ALL.
COMPUTE filter_$=(Z <= 1 and (CRA = 1 or CRA = 2 or CRA = 6)).
VARIABLE LABELS filter_$ 'Z <= 1 and (CRA = 1 or CRA = 2 or CRA = 6) (FILTER)'.
VALUE LABELS filter_$ 0 'Not Selected' 1 'Selected'.
FORMATS filter_$ (f1.0).
FILTER BY filter_$.
EXECUTE.
CROSSTABS
  /TABLES=CRA BY Z
  /FORMAT=AVALUE TABLES
  /STATISTICS=CHISQ PHI
  /CELLS=COUNT EXPECTED ASRESID
  /COUNT ROUND CELL.
```

Crosstabs

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
CRA * Z	103	100.0%	0	0.0%	103	100.0%

CRA * Z Crosstabulation

| | | | Z | | |
			Off-task	On-task	Total
CRA	Teacher talking to the whole class	Count	9	9	18
		Expected Count	6.3	11.7	18.0
		Adjusted Residual	1.5	-1.5	
	Teacher using question and answer method of teaching to the whole class	Count	25	35	60
		Expected Count	21.0	39.0	60.0
		Adjusted Residual	1.7	-1.7	
	Student working in pair/group with concrete resource support	Count	2	23	25
		Expected Count	8.7	16.3	25.0
		Adjusted Residual	-3.2	3.2	
Total		Count	36	67	103
		Expected Count	36.0	67.0	103.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	10.970[a]	2	.004
Likelihood Ratio	12.917	2	.002
Linear-by-Linear Association	10.864	1	.001
N of Valid Cases	103		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 6.29.

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	.326	.004
	Cramer's V	.326	.004
N of Valid Cases		103	