Does the Perceptual Motor Program Smart Start with (PMP) have an Affect on Learning and Behaviour in the Classroom?

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Abstract

There is growing concern in New Zealand that one in five children are not achieving literacy and numeracy at an acceptable level. The program Smart Start with (PMP) was developed because children were failing to acquire the 'access skills' of reading and mathematics in the first years at primary school. There is little current evidence to demonstrate the effectiveness of Smart Start with (PMP).

Aim:

The aim of this study is to investigate whether Smart Start with (PMP) has an affect on learning, behaviour and social confidence in a new entrant classroom.

Methodology:

The research design is quasi-experimental and a mixed method approach was utilised to gather data from an intervention school delivering Smart Start with (PMP) and a control school that does not deliver the program. Quantitative and qualitative data was collected.

Measures include new entrant baseline academic achievement scores. Classroom behaviour observation, classroom teachers' questionnaire and interview, parent helper informal interview and a free text paper survey.

Results:

There was little impact on baseline academic achievement at the intervention school; however there was high level support and satisfaction from teachers, parents and other school stakeholders. As a result of engaging in Smart Start with (PMP) children at the intervention school appeared to acquire competency in the foundation skills required for success at school.

These results are tempered by small sample size and short length of intervention timeframe.

Recommendations:

It appears worthwhile and valuable for schools to implement Smart Start with (PMP) in the first years at school.

Schools delivering Smart Start with (PMP) provide regular professional development opportunities for school stakeholders running the program.

Schools that deliver Smart Start with (PMP) to ensure the program is adequately resourced.

Introducing Smart Start with (PMP) to the early childhood sector may be of value to assist in transition to school.

A large trial of Smart Start with (PMP) in the form of longitudinal or National level study would provide a valid measure of the impact of the program on readiness or foundation skills required for success at school.

Dedication

I dedicate this theis to my three children Kaleb, Max and Carter. Without their inspiration, joy of learning and amazing attitude to life this study would never have been started.

Finally, and most importantly for my husband Colin whose motivation, drive and energy I could not live without.

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Glossary

Perceptual motor programs (PMP) are defined in the literature by Hyatt, Stephenson & Carter (2009) as those that require the integration of sensory input (visual, auditory, and kinesthetic) with fine or gross motor responses.

Behaviour is defined according to Brown (2008) for the purpose of this study as the manner of being onself, demeanour, manners, observable actions, treatment shown to or towards another or others.

Learning is defined for the purpose of this study according to Brown (2008) as the action of learn, education, schooling, knowledge acquired by systematic study and the possession of such knowledge. Learning is measured in this study by baseline academic achievement scores.

Success at school for a new entrant child for the purpose of this study refers to a child wanting to go to school, a child being ready for formal learning, a child achieving academic success at an acceptable level and showing appropriate behaviour in and outside of the classroom.

BNFD is brain-derived neurotrophic factor. Brain-derived neurotrophic factor (BNDF) gives the synapses in the brain the tools they need to take in information, process it, associate it, remember it and put it in context.

Pause is defined as the parent helper waiting to allow a child problem solve for themselves.

Prompt is defined as the parent helper offering an idea to the child of how to problem solve and achieve success as the activity station.

Praise is the parent helper acknowledging the success of the child.

Mean refers to Saks and Allsop (2007) the sum of all scores in a distribution divided by the total numbers of cases. The mean as a measure of central tendency has two limitations; the

first is that it is affected by the presence of outliers. For the purposes of this study no outliers were excluded from the data set. The second limitation is, even when outliers are excluded, is that its value is pulled away from a centre of distribution where its centre is skewed.

Std. deviation refers to the average or typical amount of participants that deviate from the mean. It is useful for determining those scores which are extreme or abnormal. The confidence level of 95% that we are using to determine if we can reject our null hypothesis that the program Smart Start with PMP has no affect on learning and behaviour in the classroom is directly related to it.

Degree of freedom measures the amount of evidence that you have. For the purposes of this study the degree of freedom was (n -1).

P-value refers to, as suggested by Bowling (2002) the level of significance or estimate of probability. For the purposes of this study an alpha level of 0.05 or 5% was set. This means we will only reject the null hypothesis if there was 5% or less probability that we could have obtained our result (or something more extreme) by chance.

Chapter 1: Introduction

Einstein has lead us to believe that learning is experience – whilst everything else is just information.

This chapter will provide an overview of the thesis. It will outline the interests of the researcher, the purpose of the study, the research aims, objectives, hypothesis and significance. It also provides a background by exploring the competencies that a five year old child requires to be ready for and engaged with formal learning in New Zealand and how Smart Start with (PMP) proposes to support this process.

Most children in New Zealand start school on the day they turn five years old; this happens whether or not they are ready for or engaged with formal learning. New entrant children are unique in the school system as they are new to the environment of both formal learning and socialisation in the school playground. Success at school including academic achievement, behaviour and social confidence appear to be linked. Therefore this study aims to investigate whether Smart Start with (PMP) has any affect on a new entrant child's success at school.

According to TV One News (2010) it appears there is growing concern in New Zealand, that one in five children are not reading, writing and doing maths at an acceptable level. Therefore this study aims to investigate whether Smart Start with (PMP) has an affect on learning, behaviour and social confidence in the classroom. Currently there is little evidence to demonstrate that Smart Start with (PMP) is successful in terms of providing children with the foundation skills required to succeed in a formal learning environment. However many primary schools in New Zealand have engaged the program and this study aims to evaluate its effectiveness.

1.1: Interest of the researcher

As with most research inquiry this study began with a personal observation as a mother of three boys aged two, six and eight, who has previously worked in the field of movement in early childhood and school aged children and is studying toward a Master of Health Science Degree. Therefore with being a parent and attendance at a thought provoking seminar

regarding movement and its relationship to learning that an interest was transferred into a thirst for knowledge regarding children's readiness for and engagement with formal learning.

Moreover having children at school that may not have been ready for formal learning provided an interest to find out if this anecdotal evidence was an accurate reflection of the current literature and practice of perceptual motor programs, in particular Smart Start with (PMP).

1.2: Purpose of the Study

There is little evidence based data regarding perceptual motor programs and their impact on learning and behaviour in the classroom. This study was designed with a mixed method approach to evaluate whether Smart Start with (PMP) has any affect on engagement with learning and behaviour measured through baseline academic outcomes and education stakeholder feedback. Specifically the study sought to address two questions, is there a measureable quantitative difference in learning and behaviour and secondly what do school stakeholders know, think and feel about the program and new entrant children being ready for and engaged with formal learning.

1.3: Aim

The aim of this study is to investigate whether Smart Start with (PMP) has an affect on learning, behaviour and social confidence in the formal environment of a classroom.

According to Boswell & Cannon (2007) the research question forms the foundation of the study, as is the case in this study. The variables include learning, behaviour and social confidence. The intervention being perceptual motor program: Smart Start with (PMP).

1.4: Objectives

The objective of the study is to measure and compare any differences in learning and behaviour in the classroom between an intervention and control group. The intervention group will be delivering the perceptual motor program Smart Start with (PMP).

- Does Smart Start with (PMP) have an affect on learning?
- Does Smart Start with (PMP) have an affect on behaviour?
- Does Smart Start with (PMP) have an affect on social confidence?

- Do new entrant children have competencies measured when entering school?
- Are learning and behaviour of new entrant children linked?
- Does parent help impact on learning and behaviour?
- Are five year olds ready for formal learning?
- Is it valuable for children to have learning experiences outside classroom, particularly in the form of Smart Start with (PMP)?

According to Bowling (2006) hypotheses can be derived from concepts (i.e. abstract ideas) and formal theories (i.e. tentative explanations of relationships derived from interrelated concepts). For the purposes of this study the hypothesis was derived from a concept or abstract idea. This idea is that regular, monitored activity involving perceptual motor activities with language follow-up in the form of perceptual motor program: Smart Start with (PMP) has an affect on learning, behaviour in the classroom.

1.5: The significance of the study

A child's readiness for and engagement of formal learning may have an impact on their future at school and their success or failure in a formal learning environment. The early years at school, years 0 – 3 are especially critical with foundation skills being acquired. According to the Ministry of Education (2010) children that are ready for and engaged with formal learning, enjoying and being successful at school both academically and with social confidence should provide the basis for a life long love of learning.

It is therefore important that early childhood education and school programs are being constantly reviewed to ensure that children are ready for and engaged with formal learning. In New Zealand there appears to be growing concern that one in five children are not achieving acceptable levels in reading, writing (literacy) and maths (numeracy). Moreover this study aims to investigate as to whether Smart Start with (PMP) has any affect on learning and behaviour through both descriptive statistical data in regard to baseline academic achievement competencies and qualitative data in regard to opinions expressed by participants. Conclusions inferred from this study may provide evidence based information for Primary Schools on the benefit of delivering this program at their schools.

In New Zealand children that have been in an early childhood environment for example kindergarten, day-care or home based care is governed by the curriculum Te Whaariki which is based on free play and self-directed learning. Therefore children turning five go from one day an environment of free play and self directed learning to being in an environment of formal and teacher directed learning. There is an expectation that at five a child will just 'automatically' be ready for school and that they have absorbed the foundation skills and competencies that is necessary to find success in the formal learning environment of school.

As interest and inquiry into movement and learning gathered momentum Sport and Recreation New Zealand (SPARC) funded an 'Active Movement Program" for 0 – 5 year olds in 2002 that is co-ordinated by Regional Sports Trusts. This program is still being delivered by Sports Trust throughout New Zealand and is based on the philosophy of a perceptual motor program. The programme is promoted by 15 free individual booklets that are in a pack for parents, caregivers and early childhood educators to use and are based on sequential foundation movement activities. The Active Movement program was intended to provide parents, caregivers and early childhood educators with the tools to engage movement based learning opportunities for under 5's.

According to Tayler (2006) a more unified approach to learning should be approached in both early childhood and primary school systems, and that attention should be given to transition challenges faced by young children as they enter school. In New Zealand a 'readiness for school' approach is followed with focus on cognitive development in the early years, however in Nordic and Central European countries the early years are seen as a broad preparation for life and the foundation stage of life long learning. If the transition for children from an early childhood setting to the formal environment of school at the age of five is too abrupt and handled without care there is the risk of regression and failure.

Therefore there may be a benefit to new entrant children being engaged in Smart Start with (PMP). This is in part due to the programs aim to increase competency of foundation skills whilst children are having fun, finding success and enjoying praise from classroom teachers and parent helpers. As suggested by Bulluss & Coles (2007) to find success in the formal environment of learning children must understand the apparent contradictions of language if they are to make real sense of the world. Furthermore this in turn may ensure an early love of learning and engagement with formal learning.

According to Mitchell, Wylie & Carr (2002) there is evidence that an Early Childhood Education (ECE) curriculum where children can investigate and think for themselves is associated with better cognitive performance in later schooling than one that is academically orientated. Also of note is that those positive associations between (ECE) participation and the development of learning dispositions have been found in studies carried out in New Zealand, England, Northern Ireland and Canada. Learning disposition gains have been found in both the short and long term although there appeared to be no significant effect on participation after age seven. It was noted by Mitchell, Wylie & Carr (2002) that this may have been due to a lack of cohesion between the schooling and (ECE) contexts. Therefore it appears crucial that there is a time of transition between the settings of (ECE) and school and an opportunity for children when at school to consolidate the skills of investigating and thinking for themselves. Smart Start with (PMP) aims to provide that opportunity.

As suggested by Crowe & Connell (2003) movement is an essential part of life for a human being, when a child is not asleep they are generally taking part in some sort of play or activity prior to turning five. Therefore the transition from an early childhood environment of free play and self directed learning to the formal learning environment of a classroom can be challenging. Smart Start with (PMP) was developed by Judie Bulluss & Peter Coles (2007) as they identified that many children were failing to acquire the 'access skills' of reading and mathematics. The program was developed in the belief that it contributes to better educational opportunities for children in schools.

Smart Start with (PMP) is according to Bulluss & Coles (2007) a motor co-ordination program for primary school aged children in Years 0 – 3. It is made up of a range of five sequential movement stations with language activities immediately after the equipment session. Furthermore it is a holistic movement, language based development program that aims to develop the whole child not just a particular skill. Confidence is the umbrella which sits over the whole program, confidence in the physical world generally leads to confidence in yourself and your cognitive world, therefore allowing a child to experience success both inside and outside a classroom.

The program aims to be preventative rather than curative, facilitating motor development as part of the preparation for formal learning. The philosophy of the program is based on the belief that children need to develop perceptions and understandings of themselves and the

world they live in. Above all Smart Start with (PMP), according to founders Judie Bulluss and Peter Coles (2007) aims to give children the confidence to direct their own world to suit their best interests. Often within the New Zealand Primary School system a child is not given extra assistance outside the curriculum unless they are significantly falling behind, such as the program reading recovery.

According to Bulluss & Coles (2007) Smart Start with (PMP) is not an end in itself but rather a means to an end. In their opinion there are six readiness skills that must be achieved by new entrant children before formal cognitive skills are taught, these readiness skills are auditory, visual, motor, social, language and memory. It is also their belief that Smart Start with (PMP) should become part of the totality of a school program by helping to develop memory skills, language skills, confidence, problem solving skills and physical education skills. If the program becomes an isolated subject area many of the aims of the program may not be achieved. The critical component is that children are given the maximum time to prepare so that they cope easily in a learning situation and experience success.

Connell & Crowe (2003) suggest that Smart Start with (PMP) covers many strands of the Health and Physical Education Curriculum in New Zealand, specifically personal growth and development, regular physical activity, movement skills, safety and risk management, personal identity and self worth, positive attitude and challenge, and people and the environment. The program appears to fit well into the New Zealand primary school curriculum; however there are many activity programs available for schools to utilise within their curriculum program.

According to Bulluss & Coles (2007) Smart Start with (PMP) aims to give children a range of experiences through seeing (visual), hearing (auditory), touching (kinesthetic), making perceptual judgements through sequenced activities, that may assist with preparation for formal learning. The program is about the child not the skill. Teachers may not be aware of the learning style a child has when they are in their first years of formal learning, therefore an opportunity for children to experience different types of learning styles through Smart Start with (PMP) may be beneficial.

Smart Start with (PMP) proposes to provide the opportunity for a child, regardless of skill level, to experience the integration of body, mind and environment, have fun and find success

whilst performing the tasks at the sequential stations. According to Goddard-Blythe (2005) the more tasks that become automatic for a child the more opportunity there is for higher learning to take place. Therefore it appears that automaticity of foundation skills may add value to a new entrant child's success both in and outside of the classroom. In particular, it may be most valuable to those children who do not get opportunity, encouragement and practice in any other environment.

It appears Smart Start with (PMP) is different to a general physical education or motor skill program because it aims to develop the whole child rather than the skill; it is not purely a 'motor' or 'physical education' program. It is a perceptual motor program where language is the key factor in providing the perceptual knowledge about motor experiences. The program has its roots in the development of language, the gaining of problem solving skills and the general school readiness areas of auditory, visual, motor, social, memory and language. Without language the program may develop into just another Physical Education program, therefore the language experiences may enhance the child's ability to cope in the classroom and increases the foundation skills they bring to the table of learning.

The components of Smart Start with (PMP) is the initial floor session to learn the movement required prior to the activity session, the equipment session in which activities are experienced and the language follow-up session immediately after the equipment session, however there is little evidence based data regarding Smart Start with (PMP) and the potential impact on learning, behaviour and social competence in the classroom. Smart Start with (PMP) proposes to facilitate motor development for school aged children in the endeavour that the secure competencies and foundation skills which will in turn prepare them for the formal environment of life in a classroom and outside in the playground.

Although the value of the program and the benefits it brings to the classroom has limited evidence the program is being engaged in a wide range of primary schools throughout New Zealand, specifically in years 0 – 3. Resources and further information on the Smart Start with (PMP) program is available from the authors Judie Bulluss and Peter Coles, and Gill Connell of Moving Smart Ltd who provides professional development both nationally and internationally to teachers, parents and caregivers.

This study aims to investigate whether the program Smart Start with (PMP) has an affect on learning, behaviour and social confidence in the formal environment of a new entrant classroom. Inferred conclusions and recommendations may determine what benefit Smart Start with (PMP) program would be to New Zealand new entrant children and provide evidence based research in the value of Smart Start with (PMP) to Primary Schools in New Zealand.

1.6: Components of the program Smart Start with (PMP)

Smart Start with (PMP) has three components and the Teacher Manual suggests that the program runs in school time at least three times per week. It requires a large safe area, usually a hall (for storage of the equipment) and one adult per station (five stations). The intended outcome of these activities is to develop the child holistically as a part of the total school curriculum to ensure they are ready for the formal learning environment of a classroom.

Evaluation is a key area of the three components to provide classroom teacher's evidence based information on an individual child and where there learning needs are. A screen test is also provided as part of the program and is ideally completed after 10 weeks of a child participating in the program. The screen test evaluates the six components of preparation for formal learning auditory, visual, motor, and social, language and memory. It also identifies areas of weakness in readiness for formal learning that in turn provides the classroom teacher valuable information with which to plan the curriculum and a well-balanced program.

Component 1

Floor Session: 10 – 20 minute duration.

This session allows the children opportunity to practice the movement patterns for the equipment session the next day. No equipment is used in this session and foundation skills are taught, however music plays an important role in building foundation skills for the equipment session. According to Bulluss & Coles (2007) floor sessions are the first steps to implementation. The success of any task depends on the performer's ability to cope with and execute correctly all components of the task.

The floor session is the pre requisite for the equipment session where movement patterns are learnt and the floor becomes the major piece of equipment ensuring child safety. 100 floor activity session cards are provided Smart Start with (PMP). On each card represented is the outcome, resources required, language to be used, activity and evaluation.

Component 2

Equipment Session: 30 minute duration (5 minutes to take shoes on and off).

This session must not exceed 40 minutes, as noted by the authors, ensuring the children remain on task. 5 stations are completed at 5 minute intervals. Each station has adult supervision in the form of a parent helper who is following the Pause/ Prompt/ Praise philosophy to allow the child a successful and safe session. There are 4- 5 children at each station and they move in teams to the next station in a clockwise direction. The program provides 100 activity cards that work alongside the floor session card of the same number. On each card there is and outcome, motor, perception and skill. Also directions on what to do at the station and sub station if it is required to ensure that no child is sitting still or waiting for a turn. The card also refers to what happened in the floor session, language to be used, individualising up or down, techniques, teaching points and evaluation.

All cards are colour coded, red for fitness, green for hand/ eye co-ordination, blue for locomotion, yellow for balance, white for eye tracking. Activity cards must be done in sequence for the full benefit of the program to be achieved. Each week one card is to be replaced by a card of the same colour to ensure the sequential nature of the program continues.

The card being replaced is also the card that the teacher assesses and records the child's skill level on. This assessment is usually completed once per week. It aims to give the teacher a snapshot view of the skill level of the child and may provide information for further classroom planning and a well-balanced program.

Station: Eye tracking: creates eye fitness and aims to improve the child's ability to follow words along a page whilst minimising eye rubbing and tiredness. Eye fitness allows the head to stay still while just the eyes move when reading

Station: Locomotion: Moving from one place to another, understanding how big you are and what space you will fit into, underneath or around. Understanding the contextual meaning of words under, next to, on top of, around, over, (this is also followed up in the language session by taking to words from real to symbolic). Understanding how big your body is where you may or may not fit.

Station: Balance: The most advanced form of balance is the ability to sit still. It is feasible that this has an impact on classroom environment. Body rhythm is an internal sense of timing which is fundamental to hopping, skipping and reading. Balance, language, vision, emotional and muscular development and concentration are enhanced by vestibular movement. Understanding where your body is in space and what happens when you move it appears to assist with achieving control over those movements.

Station: Aerobic activities: The aerobic activities aim to increase fitness and being fit is essential in being able to cope with a physically demanding day at school. We need to move aerobically to oxygenate the brain and integrate our brain and body; integration is the ability to process information without actively thinking about it.

Station: Eye/hand, Eye/foot Co-ordination: Helps with proprioception and spatial awareness, aims to improve fine motor skills, cutting, pasting and manipulating equipment. Proprioception is your unconscious awareness of where you are and is an essential foundation skill for success in the classroom. Fine motor movements are the foundation skills for writing.

Component 3

Language follow-up session: 5- 10 minute duration.

This is immediately after the equipment session and can be done in the classroom. The language follow up session is completed as soon after the equipment session as possible to take the real meaning of what happened in the equipment session to the symbolic meaning of the classroom, following the theory that experience plus language is equal to understanding.

The 100 language follow up activities have been designed to provide simple, quick activities to reinforce the language concepts covered in the equipment session. Instructions for the use of the activities are provided for teachers however sheets can also be used that is most

appropriate for the children participating; the program is designed to ensure it meets the language needs of the children involved.

Parent Help

Parent help is a key component to Smart Start with (PMP). Each station has a parent helper to ensure safety and to provide positive language. Receiving encouragement from parent helpers and the teacher may result in the child feeling good about themselves and their environment. Evidence suggests Margusity (2010) that when it comes to education seeing isn't just believing, it is understanding. Students are now more involved in their own learning and this requires a different type of teaching as well as a different type of learning. Parent helpers comment how much more he or she has learned about the life of the classroom by being present. It is also noted by Javier (2010) children of parents who are involved, whether with homework or a school activity are likely to be much more successful learners than children without involved parents.

Parents offer a unique perspective and can enrich the curriculum by sharing their experiences. It appears critical that parent helpers are provided with adequate Smart Start with (PMP) training to ensure the impact of the program is not lost. Parent helpers are provided with a parent helper handbook once training on the program has been completed.

Sequential, fun, foundation skills that can be individualized up or down suggests Bulluss & Coles (2007) are the focus of Smart Start with (PMP). Furthermore the outcomes model for the program are three fold; firstly, motor outcomes defined as reacting and include fitness, balance, eye/hand/foot co-ordination and locomotion. Secondly, perception outcomes defined as self, space and time and these include making perceptual judgements of body control, laterality, directionality, space awareness, body rhythm and body image. Thirdly, skill outcomes defined as coping skills are physical education, confidence, memory, language and problem solving.

Once a new entrant child has acquired competencies or access skills in these three areas, motor, perception and coping skills Bulluss & Coles (2007) suggest that they are ready to be engaged with and find success in the formal environment of a classroom.

The overall proposed outcome for the child is positive self worth, confidence, developed perceptions, motor outcomes, fitness and fundamental skills. Moreover the program appears fundamentally different from general physical activity programs as it offers an introductory floor session, equipment session and a language follow up session at the end of the equipment (activity) session. The language follow up session takes the experience (real) that the children have had in the equipment session, kinesthetic, auditory and visual, to the (symbolic) experience of the classroom.

This introductory chapter has provided an outline for the thesis direction. It has described the interests of the researcher, the research aims, objectives, purpose, significance and hypothesis. It has also provided a background on the components of Smart Start with (PMP) and what foundation skills a child requires to be ready for and engaged with formal learning.

1.7: Thesis Outline

Chapter One: Introduction: This introductory chapter provided an overview of the thesis direction. It described the interests of the researcher, the significance of the research, the purpose of the study, the research aims, objectives, research question and hypothesis. It also provided a background for this study by exploring the competencies that a child requires to be ready for formal learning and how Smart Start with (PMP) proposes to support this process. This chapter concluded with the components of the program Smart Start with (PMP).

Chapter Two: Literature review**:** A narrative synthesis approach will be used to report the literature. The literature review is divided into sections, the first section explores success in the classroom for a new entrant child, the second section explores new entrant child behaviour in the classroom, the third section explores new entrant social competence and the fourth section explores the impact of classroom teachers and parents.

Chapter Three: Methodology**:** The research design is quasi-experimental. The rationale for selecting this design is discussed as well as methods, intervention, sample, data collection, measures, procedure and ethical issues. The chapter will conclude with a description of the analysis process.

Chapter Four: Results**:** The results of the data will be grouped into five sections. Baseline academic achievement measures collected from classroom teacher's pre and post intervention,

classroom teacher questionnaire, classroom teacher interview, survey responses and an informal parent helper interview.

Chapter Five – Discussion**:** This chapter will provide an overview and discussion of the results of this study and the impact of Smart Start with (PMP) on new entrant success at school, new entrant classroom behaviour, new entrant social competence and the opinions of classroom teachers, parents and school stakeholders.

Chapter Six – Conclusion and recommendations: In this final chapter a summary will be made of what is already known about the topic and what this thesis adds. The limitations and challenges of the research will be examined and recommendations for future research will be made.

Chapter 2: Literature Review

This literature review is divided into four sections, the first section explores new entrant success at school, the second section explores new entrant behaviour at school, the third section explores social confidence, and the fourth section explores classroom teachers and parents. This chapter concludes by discussing whether the literature supports that Smart Start with (PMP) has an affect on learning and behaviour in the classroom.

Perceptual motor programs are defined in the literature by Hyatt, Stephenson & Carter (2009) as those that require the integration of sensory input (visual, auditory, and kinesthetic) with fine or gross motor responses. There is little evidence available on the specific perceptual motor program Smart Start with (PMP) that this study investigates however there is evidence on perceptual motor programs in general.

The Perceptual Motor Program Smart Start with (PMP) will be referred to throughout this document as Smart Start with (PMP). Success at school for a new entrant child for the purpose of this study refers to wanting to go to school, being ready for formal learning, achieving academic success at an acceptable level and showing appropriate behaviour in and outside of the classroom.

2.1: Success at school

According to Clark (2003) children are born with an infinite curiosity and desire to experience the world around them. One of a child's formative discoveries is the ability to move. Human beings are built to move – this is how life's journey begins. Physically experiencing concepts and information promotes the connection between what children can see and do (the physiological) and what their minds understand (cognitive learning).

Therefore it appears crucial that schools provide opportunities for new entrant children to form a connection between what they can see, do and understand. According to Bulluss & Coles (2007) Smart Start with (PMP) aims to ensure children find success in the formal environment of learning through understanding the apparent contradictions of language and making real sense of their world. Moreover as suggested by Clark (2003) movement is a paradigm of holistic learning nurturing the mind, body and soul.

According to Bulluss & Coles (2007) motor skills make up one of the six general school readiness areas and a child that has acquired competent motor skills may find success at school. A child's motor development according to Cooke (2002) should follow a developmental sequence, lying on back, lying on tummy, side lying, creeping and crawling, sitting themselves up, kneeling and pulling to stand, cruising and climbing, standing, walking and running. A child working through developmentally appropriate stages will generally achieve these milestones, however a child put into a position they are not developmentally ready for may cause a change in the developmental sequence. This includes propping a child to sit when they are not developmentally ready to be sitting.

If the child does not have the balance required to move themselves from sitting to lying and lying to sitting they may shuffle along on their bottom to reach what they want. Moreover as suggested by Connell (2002) the learned skill is bottom shuffling rather than creeping and crawling and the child's sense of balance may be compromised for future learning experiences. This may impact on success in the formal environment of a classroom.

In New Zealand there are a variety of early childhood settings. It is feasible that not all children will have the opportunity to participate or experience functional motor activities before attending school. Therefore new entrant children entering school at age five may be at varying levels or phases of their motor development, and according to Holt (1983) all children want and strive for increased mastery and control of the world around them. A fine balance is required to ensure a child wants to continue to strive for control of the world around them and not limit their world to what they have control of.

Functional motor activities as suggested by Jackson (2007) require a child to integrate their body, mind and environment. Which in turn according to Connell (2002) allows a child an opportunity to process information without thinking about it. Therefore all children, regardless of their motor abilities need to move around and experience how they can interact with their environment. It is essential that all children have motor experiences because they are the foundation on which all other developmental skills are built.

In particular Jackson (2007) suggests that the most effective way to improve the motor skills of children is repetition, variation and practice of movement in a variety of functional and play routines is essential for motor development. A child will achieve motor outcomes when

given many opportunities within their daily routine to experience and practice movement. Smart Start with (PMP) aims to provide a school based program where children can practice and experience sequential movement activities. It is interesting to note that SPARC (2007) suggest there are three phases to acquiring motor skills.

The three learning phases as suggested by SPARC (2007) are firstly the discovering phase where learners make a concentrated effort to learn the movement. Activities at this stage allow or enable children to explore and discover for themselves what is involved in performing a particular movement skill. The second is the developing phase where learners become more efficient and refined in their performance of the movement skill through repetition and practice in a variety of contexts and finally the consolidating phase where learners use more automatic movements (automaticity). When a child has automaticity of a movement they can apply movement skills in a variety of ways and combine other movements in more complex activities, this skill appears valuable when finding success at school.

Furthermore SPARC (2007) also suggests that the acquisition of automaticity of a task or movement is gained through repetition and consolidation of a task or movement; it is the ability to do something without thinking about it. Automaticity of foundation skills such as fine motor skills may be helpful in the classroom to potentially enable new entrant children to be in the right place and engaged for formal learning. We as adults often take this automaticity for granted as this is part of our everyday lives, there are many tasks that we can do without even thinking about them. Therefore it appears that automaticity of tasks may allow a new entrant child a higher level of self and body control which may in turn put them in the right place to learn, enabling success at school.

Moreover further evidence suggests, Hagerman (2008) that any motor skill more complicated than walking has to be learned, and thus it challenges the brain. At first you are awkward and then as circuits linking to the cerebellum, basal ganglia and pre-frontal cortex engage your movements become more precise. With repetition you are creating automaticity which allows higher level learning to take place, such as improved concentration and focus. Other studies SPARC (2007) & Jackson (2007) concur with this way of thinking.

Giving children an early start in developmentally appropriate physical activity according to Virgilio (2006) will provide them with a foundation for a healthy lifestyle and with the

necessary motor skills to serve as building blocks for more advanced motor skills, games and sport activity later in life. As discussed earlier the assumption is made in New Zealand that children acquire the foundation skills for movement through everyday active activities, however we now live in an age and environment that for a number of reasons children from birth are placed into car seats, buggies, bike seats and playpens. Therefore the utilisation of the floor as a playground in a child's early years as suggested by Connell (2002) is not readily available and developmental milestones are being achieved later which impacts on a child being in the right place to learn at the chronological age of five.

Moreover according to Rossmanith (2002) there appears to be newly coined phrases such as the 'bubble wrap generation' where parents comment about their own carefree childhoods and how this has changed today with children leading far more restricted lives. These restrictions may affect children by way of limiting independent exploration and risk taking. Therefore there may be an impact on a child's physical, cognitive and emotional development.

Furthermore the New Zealand Ministry of Education (2009) suggests that it is essential for children to develop strong learning foundations early in life to learn successfully throughout their schooling and beyond. Successful learning in the early years is a prerequisite if they are to remain engaged and achieving in education as they progress through the system. Therefore the early years of a child's education are crucial to their future success at school and beyond.

Virgilio (2006) agrees by stating that children aged two through six is an excellent time to develop motor skills. Teaching children to be competent movers will open many doors of opportunity throughout their lives; most importantly children will appreciate the joy of movement and what it can accomplish in their mental, physical or social development. Therefore the evidence suggests that a new entrant child would benefit and potentially find success at school from activities that improve their motor skills.

Maitlin (2002) suggests we consider a few skills that a five year old requires to understand a sentence: encoding the sound of a speaker's voice, encoding the visual features of a printed language, accessing the meaning of words, understanding the rules that determine word order and appreciating from a speaker's intonation whether a sentence is a question or a statement. That is a lot of information for a five year old entering the formal learning environment of school to understand, be engaged with and feel confident about.

In a classroom environment the teacher is generally engaged with teaching the learning experience and managing behaviour. According to Gable (2001) if we want to nurture children's talents effectively, carefully watch how they react to learning opportunities. Smart Start with (PMP) offers an opportunity for children to engage with a learning experience that a classroom teacher can observe. This is important as Cohern, Stern & Balahan (1983) suggest children communicate with us through their eyes, the quality of their voices, their body postures, their gestures, their mannerisms, their smiles, their jumping up and down and their listlessness.

Evidence also suggests Holt (1983) that the type of teaching style a teacher has and whether they allow children to problem solve for themselves may impact on learning. Smart Start with (PMP) aims to provide an environment where children are able to problem-solve for themselves, through the parent helper pause, prompt, praise approach. However a parent helper or teacher is available to provide positive feedback and share in the child's success.

The philosophy of Smart Start with PMP, according to Bullus & Coles (2007) is that it is a holistic movement, language based development program that aims to develop confidence in the whole child. Confidence in the physical world generally leads to confidence in yourself and your cognitive world, therefore potentially allowing a child to experience success in the classroom.

2.1.1: Readiness to Learn

According to Vo-Vu (1999) the concept of school readiness has been defined and redefined over the years. There appears to be two types of readiness: the first being *ready to learn* which involves a level of development at which a child has the capacity to learn different materials and the second being *ready for school*. Being ready for school involves a specific set of cognitive, linguistic, social and motor skills that allow the child to assimilate the schools curriculum.

Ready to learn, engagement with learning, or the mechanics of learning as suggested by Maria Montessori (cited in Goddard Blythe, 2005) is that learning begins with experience, including sitting on the mat, interacting with classroom teachers and peers, and what it feels like to hold a pencil. The role of the teacher is to suggest rather than command, and as Holt (1983) suggests memory works best when unforced, therefore suggestions rather than commands by

the classroom teacher allows the child to develop self-regulation of their own behaviour through guidance, direction and inspiration. Therefore an experience for a new entrant child that is pleasant is more likely to be easier to remember.

Included in the mechanics of learning are engagement of child and teacher, improved pencil grip, good posture and good behaviour. The evidence suggests, Absolum (2006) that in the early years at school a child's learning should begin with a variety of experiences and the classroom teacher is critical to ensuring the child develop their own self-management strategies. The program Smart Start with (PMP) aims to offer a learning, fun experience for children outside of the classroom which is able to be taken from the real environment of the floor and activity session to the language follow up session in the classroom encompassing all learning styles that a new entrant child is developing.

As a learning style is not typically developed until age seven it appears feasible that the first years spent at school should provide children with a variety of experiences and learning styles to ensure that all are catered to and children have the best opportunity to be able to learn at an optimal level and reach their potential. Rudolf Steiner agrees (cited in Goddard Blythe, 2005) that prior to the seventh year a child's primary mode of learning should be through activity and experience. Steiner education encourages children to master physical skills prior to abstract intellectual ones to ensure a readiness for formal learning.

Getting children ready for school is commonly referred to, Katz & McClellan (1991), as readiness to learn to read; however there appears to be two components, social readiness and intellectual readiness.

Social readiness as indicated by Katz & McClellan (1991) is that a child is more likely to cope successfully at school if they have had a positive experience in being in a group away from their home and familiar adults. Also they are more likely to be able to adjust to school life if they have experienced satisfying interaction with a group of peers. Social skills that may be of benefit at school are taking turns, approaching unfamiliar children and making compromises. Early childhood experiences may provide a foundation for social readiness, however this is not identified until a child has started school and the skill of social interaction without parental support is required.

Intellectual readiness for school as suggested by Katz & McClellan (1991) is a child's understanding of the language of their peers and adults at school, being able to relate to the ideas and topics introduced by the classroom teacher and other children in class. A child that has intellectual readiness for school will generally interact well in classroom discussion, classroom activities and exhibit competent cognitive, linguistic, social and motor skills. Both social and intellectual readiness for school impact on the process of learning in the formal environment of a new entrant classroom.

The process of learning as suggested by Hannaford (2005) is that we are all uniquely wired and our specific life experiences shape our perceptions, the way we learn and in essence, who we are. When we are confronted with a new learning situation we will access information most easily through our dominant senses (eyes or ears) and express either verbally, with gestures or in writing with our dominant hand. Our process of learning or learning pathways may be visual, auditory or kinesthetic. The eyes facilitate seeing and visual interpretation of our world. The ears facilitate hearing, listening and memory, whilst the hands facilitate communication: oral, written and gestural. A child with a diverse learning style as suggested by Fellers (2000) is usually a flexible learner; however children can use a mixture of learning styles or be dominant in one.

The theory of learning styles is based generally on the concept suggested by Markova (1996) that there are three perceptual pathways to learning: visual (sight), auditory (sound) and kinaesthetic (body, sensation, motion). A learning style is typically determined by age seven, in some cases it can change but not often. It has been suggested Markova (1996) that each learning style is like an instrument in an orchestra, children need to know what instrument is theirs and how they fit into the orchestra. Smart Start with (PMP) philosophy is that it encompasses activities that engage all three learning styles and can be individualised up or down depending on skill level of the child.

However according to Willingham (2006), for the vast majority of education you typically store memories in terms of meaning – not in terms of whether you saw (visual), heard (auditory) or physically interacted (kinesthetic) with the information. Therefore this evidence suggests that we store memories in the form of what we experienced and whether or not that experience was pleasurable. Moreover it appears that the perception of our world comes from

the stored meanings that we have, therefore the more experiences provided to a new entrant child the greater the meanings they can draw on in terms of engagement with learning.

Furthermore Willingham (2006) suggests that visual and auditory information are usually just the vehicles that carry the important information teachers want students to learn. Whether information is presented auditory or visually the student must extract and store its meaning. It is suggested by Willingham (2006) that memory is stored independent of any modality.

Indeed Marie Clay's approach to (cited in Bird & Drewrey, 2001) the development of reading and literacy aims to help children improve their problem solving strategies so that they can use their knowledge of the world to understand what they are trying to read. This approach is controversial amoung researchers, however children learning about their world through their everyday experiences and applying this to learning in the classroom appears to make logical sense. SPARC (2007) also suggest that learners develop an understanding of movement skills and learn more effectively when they are involved in solving problems for themselves.

Therefore it appears critical that a new entrant child has the opportunity to enjoy pleasurable, memorable learning experiences whilst at school to ensure a future engagement with learning.

2.1.2: Opportunity to learn

During the early years of a child's life they learn constantly, but as Rossmantih (2002) suggests the learning is not definable. Children need time for free, unstructured and creative play, particularly in the natural world. This play is ideally spontaneous and fun, provides a release of tension, allows children to detach themselves from realities of time and space and the restrictions imposed by the adult world, moreover it gives them the freedom to experiment with possibilities. Furthermore the benefits of play go even further; due to the variety of experience and experimenting it allows a child, there is the opportunity for self-development, self-concept and self-efficacy. Due to play limitations for children in 2010 Smart Start with (PMP) appears to offer a self-directed program where children are able to acquire foundation skills critical to success at school.

As suggested by Goddard Blyth (2005) higher cognitive skills such as reading and writing, require a child to be competent with directional awareness, for example why else would you write <u>was</u> rather than <u>saw.</u> Directional awareness depends upon stable balance to underpin

accurate left to right and right to left when writing. Balance is also essential to provide the brain with the information of where your body is in space and is essential for the most basic functions in a gravity-based environment. Balance is a key component of Smart Start with (PMP).

It is suggested by Bullus and Coles (2007) that a child with a well developed sense of balance is able to sit still and pay attention. Balance, according to Hannaford (2005) is the ability to maintain equilibrium in whatever position the body is placed in whether static or moving. It is the internal knowledge of where the body's centre of gravity is and the ability to adjust the body to maintain this equilibrium using laterality knowledge. Children with poor balance have difficulty finding a comfortable sitting or standing position; therefore they fidget and continually shift position. Moreover these children tend to spend much valuable time finding balance whilst not attending to the cognitive task. Furthermore according SPARC (1997) to children are born to move, and move to learn.

According to Goddard Blyth (2005) Dr Frank Belgau noticed, as Director of the Perceptual Motor and Visual Perception Laboratory at the University of Houston that children with reading difficulties walked differently to other children. A parent training program was developed in which parents spent time with their children each week using sensory motor activities. As a consequence of the findings and insight from parents the Belgau Balance board was developed. This resulted directly from the apparent relationship between balance, the vestibular system and learning processes. The Belgau Balance Board aims to train balance, posture, coordination and control of eye movements. These fundamental skills are essential to ensure readiness for formal learning. Balance is a key component of Smart Start with (PMP).

Further literature Hagerman (2008) suggests that repeated activation, or practice, causes synapses in the brain to swell and make stronger connections. This provides some evidence that at the cellular level repetition is the key to learning, memory retention and the reason why automaticity of tasks develop. Activities within Smart Start with (PMP) are repeated and sequential, from the floor session, equipment session to the language follow-up session. Therefore children have the opportunity within a school day to experience or practice fundamental learning foundation skills through the three different learning pathways.

A single case study by Biddulph (1997) refers to an eight year old boy who was having handwriting problems. He was assessed by an occupational therapist and was found to have poor co-ordination, did not sit well or hold his arms in a firm way; it appeared he had minimal upper body gross motor skills. He was prescribed by his occupational therapist a range of exercises that involved balance, these included spinning and use of the trampoline. This activity program was specifically put together to strengthen back muscles, build up co-ordination and improve gross motor skills. It took six months to complete. At the conclusion of the program his writing was good for a boy his age. Therefore it appears in this instance that unless a child has sufficient gross motor skills they may find the fine motor skill requirements of the classroom challenging.

Although accumulating research suggests that acute physical exercise ameliorates cognitive function in adults little is known about the effects of acute exercise on cognition during development. Simple reaction and choice response times were assessed in 7 year old and 10 year old boys (n = 36 per age group). Half of the children completed 30 minutes of aerobic exercise, whilst the other half watched television.

Each child was tested immediately prior to and immediately following the intervention. Compared to the control group, the children in the intervention (exercise group) showed a significant improvement on both tasks, with a better outcome for the choice compared to the simple task. These findings indicate Ellemberg & St-Louis-Deschenesa (2010) that physical exercise has an impact on cognitive functioning in children. As a variety of sequential activities take place Smart Start with (PMP) it appears feasible to suggest that Smart Start with (PMP) may impact engagement for learning and behaviour in the classroom.

It is also noted Hagerman (2008) that exercise improves learning on three levels, first it optimises your mind set to improve alertness, attention and motivation; second it prepares and encourages nerve cells to bind to one another, which is the cellular basis for logging in new information; and third, it spurs the development of nerve cells from the stem cells in the hippocampus. Therefore the school day should involve exercise at some level.

There is much to suggest that exercise has a positive effect on learning and behaviour in the classroom, however the type of exercise, either simple, or complex may impact on readiness

and engagement for formal learning of new entrant children. Therefore further study on the benefits to school of the program Smart Start with (PMP) would be valuable.

2.1.3: Perceptual Motor Programs

According to Hyatt, Stephenson and Carter (2009) perceptual motor programs are those that require the integration of sensory input (visual, auditory, and kinesthetic) with fine or gross motor responses, they often include activities such as throwing and catching, these being purported to improve balance, gross and fine motor skills, and academic achievement. However Wilkins (2007) suggests that a perceptual motor development program encompasses much more than just throwing and catching, it offers children an opportunity to strengthen their skills and succeed at a variety of activities, therefore allowing for their fuller participation in school and social events. Furthermore the enrichment of perceptual motor skills appears to affect the overall development of the learning potential of children.

Jackson (2007) suggests that from three to five years of age movement becomes less sensory and more perception orientated as the child begins to explore the different ways they can move and interact with their environment. Perception is the meaning that the child learns to give to their sensory input so that it becomes a message about present stimulation and past experiences. Motor action is based on interpretation of sensory input. Ideally the outcome is a precise, co-ordinated, controlled movement that achieves a functional goal. This is ultimately where all five year old children should be when they enter the formal environment of school.

Furthermore Mazoni, Southwood, Temple, Rhodes, Virji-babul and Purves (2007) suggest that positive self perceptions are the formula for building children with good self-esteem. These perceptions of competence can be positively influenced through mastery experiences. A mastery experience is where a child is learning new skills that are within her or his cognitive or physical capacity. Smart Start with (PMP) aims to provide an environment of sequential activities that can be individualised up or down depending on a child's level of competence, therefore allowing a mastery experience for the child.

Perceptual motor programs prescribe particular, sequential motor activities and exercises. Some such as the DORE program (2009) may be individually prescribed and adjusted and is specifically for people with learning challenges, while other may be generic, such as Brain

Gym ®. Studies available on Brain Gym was reviewed by Hyatt (2007) who found that the limited peer-reviewed research available failed to support claims that Brain Gym resulted in improvements in academic learning.

A survey of 117 Australian schools conducted by Stephenson, Carter, & Wheldall (2007) determined that perceptual motor programs were being delivered in Australian schools. The results confirm findings that perceptual motor programs are still being widely used as part of a remediation program for students with difficulty in literacy and numeracy.

It is noted with concern; Stephenson et al (2007) that perceptual motor programs are being widely used for typically developing children with the expectation that there will be an impact on academic learning, cognitive skills and social development. These claims are made with no reference to any studies to support them and simply echo the claims made by those advocating such programs. Furthermore recommendations have been made by organisations such as the Council for Learning Disabilities (1987) against the use of perceptual motor training to improve academic performance due to the lack of scientific evidence supporting such practices.

Moreover a meta-analysis of perceptual motor programs by Kavale and Matson (1983) showed overall they were not effective in improving academic achievement or cognitive learning. However the Kavale and Matson (1983) study is now 27 years old, therefore current studies in perceptual motor programs may provide more relevance. Although it is interesting to note that according to Hattie (2009) Kavale and Matson indicate that the quality of perceptual motor training studies was low and these lower rated studies produced the largest effect sizes.

Evidence for the efficacy of perceptual motor programs as suggested by Stephenson et al (2007) depended on narrative reviews and case study reports. Their analysis of the existing experimental studies led them to conclude that perceptual motor interventions were not effective. Therefore further investigation is needed to determine and evaluate if there are benefits of perceptual motor programs in schools for new entrant children.

However further studies Hagerman (2008) with a group of 216 third and fifth graders found a correlation between fitness and academics. Another group of 40 children half fit, and half

unfit had an EEG to measure electrical activity in the brain, there was more activity in a fit child's brain. In other words better fitness equals better attention and thus better results in the classroom, however according to Greendough (2008) the type of physical activity that you perform may also impact on the brain. Aerobic exercise and complex activity have different beneficial effects on the brain; they are complementary to each other. It is important to take them both into account.

Another extensive study on skill acquisition by Hagerman (2008) compared running rats to others that were taught more complex motor skills. After two weeks of training the rats taught more complex motor skills had a 35% increase in brain-derived neurotrophic factor (BNDF) in the cerebellum, whereas the running rats had none in that area.. Brain-derived neurotrophic factor (BNDF) gives the synapses in the brain the tools they need to take in information, process it, associate it, remember it and put it in context. Therefore the evidence suggests that the acquisition of more complex motor skills may impact on readiness for formal learning.

Studies conducted by Diamond, (as cited in Hannaford, 2005) concurred with this finding as was discovered with her work with rats whose mobility was restricted compared to those whose environment was enriched with complex and changing stimuli. Those rats with complex and changing stimuli developed changes in the brain and exhibited behaviours which could be interpreted as demonstrating improved intelligence. Therefore this study adds some value to the argument that learning experiences outside of the classroom, potentially Smart Start with (PMP) have an impact on learning and behaviour.

Hagerman (2008) even goes as far to suggest that the more complex the activity the more beneficial. Smart Start with (PMP) appears to offer the complexity of foundation movement skills whilst encompassing elements of physical activity, including balance, locomotion, eye tracking and eye/ hand and eye/foot co-ordination. Furthermore this activity is then reinforced with a language follow-up session in the classroom taking the real experience to the symbolic.

A further longitudinal study in New York of 133 participants followed their lives from infancy into adulthood. It was discovered, Hannaford (2005) that competency in adulthood stemmed from three major factors in the early learning environment: **1:** rich sensory

environments, both indoors and outdoors, **2:** freedom to explore the environment with few restrictions, and **3:** available parents that acted as consultants when the child asked questions. Smart Start with (PMP) philosophy offers all three of the major factors in the early learning environment that were deemed to lead to competency in adulthood.

According to Hagerman (2008) to keep our brains at peak performance our bodies need to work hard and physical activity is crucial to the way we think and feel. There is a science to the way exercise cues the building blocks of learning in the brain, how it affects mood, anxiety, and attention and how it guards against stress and reverses some of the effects of aging of the brain. Aerobic activity is a key component of Smart Start with (PMP).

These studies add some value to the argument that Smart Start with (PMP) affects learning and behaviour in the classroom. However there has been no study to determine the impact of Smart Start with (PMP) on readiness for formal learning and behaviour in the classroom, therefore there is a call for further investigation into the impact of the program Smart Start with (PMP).

2.2: Behaviour

According to Absolum (2006) if we get the learning right the behaviour will take care of itself. It appears if a child is engaged with learning experiences then behaviour exhibited may be conducive to learning, which is critical in the early phase of learning, in particular a new entrant classroom. All stakeholders, including parents, caregivers, teachers, Principals and Board of Trustees in a child's education want nothing more than the child to be successful, have fun and develop a life long love of learning.

Furthermore a study in 2007, (cited in Hagerman, 2008) found that people learn vocabulary words 20% faster following exercise than they did before exercise. Psychiatry appears to have accepted the idea that exercise could improve our state of mind by creating a conducive environment for learning. In fact according to Jensen (1998), sitting for more than 10 minutes at a stretch reduces our awareness of physical and emotional sensations and increases fatigue. Moreover Jensen (1998) also suggests that this results in reduced concentration and most likely behaviour problems.

Behavioural signposts, such as a child's ability to put their hand up rather than shouting out in the mechanics of learning are indicators for the classroom teacher of areas of weakness in learning. In essence Gable (2001) suggests that to nurture a child's talents effectively and carefully watch how they react to learning opportunities. A child transitioning from an early childhood environment of free to play to the formal learning environment of a classroom may exhibit behaviours, such as inattention, that indicate to the classroom teacher that focus is lost and engagement in learning is reduced. Therefore the sequential activities in Smart Start with (PMP) may provide foundation skills to allow a child to remain focussed in the classroom for longer periods of time.

According to Hagerman (2008) school can be an excruciating environment if they do not have the foundation skills they need to sit still, face forward and listen intently to a teacher for periods of time, it is impossible for some and are the reason for a lot of disruptive behaviour amoung school children. Therefore it appears logical that part of a school day for a new entrant child should involve movement.

The suggestion by Goddard-Blythe (2005) that a child with poor balance may move around regularly and not pay attention to the cognitive task may mean that child has issues with concentrating and focus, essentially engagement with learning. However if the new entrant classroom teacher is aware of behavioural signposts with regard to a child not being engaged in learning there is potential that the child receives appropriate experiences allowing an opportunity to learn. Therefore behaviour and academic achievement appear to be linked in regard to learning environments for new entrant children. The Ministry of Education in New Zealand is investigating the link between learning and behaviour with a new iniative.

The Ministry of Education new initiative is 'positive behaviour for learning'. The 'positive behaviour for learning' initiative aim is to minimise disruptive behaviour in schools which will in turn potentially improve a child's engagement with learning. This iniative is following an action plan from 2010 – 2014.

> The action plan is a major shift in the management of disruptive behaviour in the education system. It provides proactive support for parents, teachers and schools that benefit everyone. The result will be better learning environments for all students and staff, improved teacher ability to support children's behaviour and emotional needs,

> improved engagement in learning, a lift in achievement for students and an increase in teacher confidence and satisfaction. (Ministry of Education, 2010).

The three points particular to this study that the success of the plan will be measured on are; children and young people being more engaged and achieving at school, schools increasing engagement, and practitioners delivering programmes that are being continually evaluated and improved.

Part of the Ministry of Education 'positive behaviour for learning' action plan is for teachers to identify children starting school who are at risk; children exhibiting poor behaviour and not performing academically. These will be referred to as Year one indicators. These indicators have not yet been developed. The classroom behaviour observation as part of this study indicates areas of weakness observed and provides suggested approaches for classroom teachers to follow. Therefore engaging Smart Start with (PMP) at a school allows the classroom teacher a useful tool with which to monitor and evaluate behaviour and implement change where required.

'Kids Matter Primary' is a Government funded national mental health iniative piloted in Australian schools 2006 – 2008. Behaviour problems were noted to potentially be a reaction to stress or frustration. How often is it that a child comes in from the playground stressed after an unpleasant experience then that behaviour is transferred into the classroom. According to the Australian Government Department of Health and Aging (2006) these behaviours interfere with children's social and academic development. As well as applying basic techniques of positive discipline it remains important to address children's learning and emotional needs at school in order to provide effective support for children's learning and mental health.

Therefore the evidence suggests that a new entrant child engaged with learning could in turn minimise behaviour disruptions both inside and outside the classroom. It appears feasible then that engagement with learning and behaviour may be linked. Smart Start with (PMP) concurs with this finding and aims to provide an environment for engagement with learning whilst also providing an opportunity for a positive, masterful physical experience with teacher and parental praise that can be utilised in the classroom with the language follow-up session.

2.3: Social Competence

As suggested by Webster-Stratton & Lindsay (1999) children lacking emotional and social competence often fail to access the curriculum and disrupt mainstream classes with their challenging behaviours. Therefore a child that is able to utilise emotional and social competence to interact with others will generally use this skill both inside and outside of the classroom.

This was also found in a study by Belcher (2006) through new entrant classroom observation and discussion which identified the social skills of being friendly toward others and following classroom organisation as important factors. Furthermore new entrant children actions and interactions suggest their ability to relate to others, manage themselves, and to participate and contribute in the classroom environment influenced their accession of numeracy learning.

Moreover Belcher (2006) also found that new entrant children who struggled with their role as a learner in a new environment identified that ways of relating to others is uppermost in their minds. They are learning to manage themselves, and to participate and communicate in whole class and small group settings. Therefore this suggests that behaviour is linked to engagement with learning, academic development and achievement.

Gable (2001) suggests that adults can nurture a child's positive self-esteem and social readiness by helping them discover what they are good at. Part of a child's self-esteem comes from feeling competent and skilled at something he or she enjoys. Early in life children show personality traits for what they like and don't like. The planning of learning opportunities with a child's unique personality in mind, potentially Smart Start with (PMP) provides an opportunity for a child to have positive feelings about themselves and success with what they are learning. It also aims to cater to all learning styles or pathways, visual, auditory and kinesthetic, so if a new entrant child has not yet exhibited their preferred learning style they have the opportunity to experience success and acquire self-confidence engaging with the activities.

According to the Ministry of Education (2010) an impact on academic achievement and classroom behaviour may result if a child is unhappy at school, has no friends and no skills to make friends, moreover this impacts on learning as a whole. This suggests that a new entrant child with low social skills and lack of confidence in the playground may affect academic

achievement and behaviour in the classroom. Government in both New Zealand with the initiative 'positive behaviour for learning', and the Australian Government initiative 'kids matter', appear to be working towards ensuring a new entrant child and their school are prepared for learning.

Positive behaviour for learning as suggested by the Ministry of Health (2010) is based on research that shows the best results occur in schools that have a dual focus on behaviour and academic achievement. Year one indicators for early identification of poor behaviour are being developed to establish how classroom teachers can identify children starting school who are at risk. Participation in the program Smart Start with (PMP) may provide a foundation for new entrant children to equip themselves with the skills critical to ensure success at school.

This evidence suggests that certain behaviours such as in-attention, calling out and lack of social skills impact on engagement to learn and programs need to be in place to support the children, parents and school. Smart Start with (PMP) aims to provide an environment that is able to be run in school time with school and parental support to ensure a child an opportunity to succeed and reach their potential through acquiring foundation skills valuable in the classroom.

2.4: Classroom teachers and parents

What teachers and learners need to know is what we have known for some time suggests Holt (1983) is first that vivid, vital, pleasurable experiences are the easiest to remember, and secondly that memory works best when unforced, that it is not a mule that can be made to walk by beating it. This is important because as Hattie (2005) suggests academic achievement is 50% dependent upon what the child brings to the table of learning. The important factors are self efficacy, self concept, motivation, engagement and being comfortable at school.

Furthermore the evidence suggests Lavoie (2007) that classroom teachers, parents and other adults involved in a child's learning has the potential to impact the outcome of the learning experience. Therefore providing an environment both at home and school where a child has an opportunity to learn appears to be valuable and almost essential to success at school.

In fact according to Lavoie (2007) the responsibility for children's educational development is a collaborative enterprise amoung parents, school staff and community members. In our busy lives often there is limited time for interaction between these groups other than when a child is perhaps not doing well or is in some sort of trouble at school. The opportunity for parents to be involved at schools is the friends of school committees (fundraising), the Board of Trustees (school governance) or parent help in the classroom if the teacher is happy to have parents in the classroom.

Children should be taught in a manner that is appropriate for children. They are not miniature adults. Studies suggests Virgilio (2006) that many of the approaches and techniques adults identify which are inappropriate for young children, such as maintaining a workout schedule or routine and measuring weekly gains. For many years children were taught based on the premise that their motivations to move were similar to those of adults. Children are physically active because they enjoy play, need to interact with their peers, want to develop new motor skills, and need to express themselves through physical activity.

According Pica (2003) the longstanding and much loved belief that children learn best when they're sitting still, listening and working quietly at their desks has been refuted by results of children who participate in daily movement activity. These children have been shown to perform better academically and to have a better attitude toward school. Furthermore a study conducted by Hannaford (2005) demonstrates a link between fitness and intelligence, particularly in children under 16.

Real learning, according to Absolum (2006) is about engagement with skills, concepts or understandings to be learnt, so we are able to make those skills, concepts and understandings our own and have them as part of how we interpret and interact with the world. Real learning is often defined by the beliefs or understandings of the person teaching.

Furthermore in talking, reading, writing and many other things they do children are perfectly able as suggested by Holt (1983), if not hurried, made ashamed or fearful to notice and correct most of their own mistakes. At first they tend to see these mistakes not as tasks completed incorrectly but only as tasks completed differently. It is the way in which a child is told what they are doing is wrong that may impact on feelings about learning and school.

According to Bird & Drewery (2001) if a child has grown up never being encouraged or rewarded for doing well, or whose experience makes them think there is no point in trying as they will never succeed has learned to be helpless. This is otherwise known as learned helplessness. However if a child feels success and is praised in their physical world they are more likely to try and feel that empowerment in other aspects of their world, potentially the classroom. Smart Start with (PMP) aims to ensure an holistic and positive environment for children.

New entrant classroom teachers may not be aware of the early childhood environment a child is transitioning. Belcher (2006) suggests a new entrant classroom teacher may benefit from understanding the philosophy of the learning environment from which their new entrant children have come to assist and ease a child's transition to school. Fostering links between early childhood and primary school teachers may result in a closer alignment and a more holistic environment for new entrant children. Furthermore foundation skills for learning acquired in early childhood will impact on success at school with regard to readiness to learn, the school creating an environment where there is opportunity to learn, behaviour and the relationships with peers and adults.

This study is being conducted to evaluate whether it is feasible that Smart Start with (PMP) has an affect on engagement with learning and behaviour in the classroom. There appears to be a consensus with the literature that physical activity plays some part in ensuring that children are in the right place for formal learning, however little appears to be known about the affects of the program Smart Start with (PMP). Literature suggests that current perceptual motor program studies have limitations and most statements about affects on children are not backed up by evidence. Therefore inferred conclusions from this study may determine what and if this program could be of value to Primary Schools in New Zealand.

Chapter 3: Methodology

Smart Start with (PMP) is a unique motor co-ordination, language based program developed for school aged children, specifically years 0 – 3. The program was developed as it was identified by the authors that children in their early years at school were failing to acquire the 'access skills' of reading and mathematics. It comprises of 100 sequential activities in the form of two sets of activity cards (floor and equipment), A Teachers Manual, classroom language activity sheets, parent support material and a promotional video produced in conjunction with Deakin University. This study aims to evaluate whether Smart Start with (PMP) has an affect on learning and behaviour in a new entrant classroom.

There were two schools selected to test the hypothesis that Smart Start with (PMP) has an affect on learning and behaviour in the classroom, School I and School C. They are co-educational, urban and of similar decile rating and demographic.

3.1: Methodological Approach

The research design is quasi-experimental and a mixed method approach of enquiry which utilises descriptive statistics and qualitative data was conducted. According to Greene (2008) a mixed method of enquiry aims to ensure that a full and holistic picture of the child, the environment and the program is collected, therefore mixed method research was selected to evaluate whether rregular monitored activity with language follow-up in the form of perceptual motor program Smart Start with (PMP) has an affect on learning and behaviour in the classroom. A new entrant child and their education encompass the whole community and many variables impact on a child's readiness for formal learning in the classroom.

This approach of social enquiry was conducted as it offers the opportunity to meaningfully engage with the stakeholders in the education of new entrant children, for example parents, classroom teachers, Principals and Board of Trustees. Mixed methods research provides both meaningful statistics and the opportunity for respectful listening and understanding to ensure holistic conclusions are inferred. Moreover to decipher more clearly how classroom teachers, parents and parent helper's opinion about Smart Start with (PMP) both quantitative and qualitative data was collected.

To collect evidence based data relating to the affect of Smart Start with (PMP) a number of variables are measured, these include pre and post new entrant baseline academic achievement measures, classroom behaviour observations, classroom teacher questionnaires and interviews, parent help informal interview and school stakeholder surveys.

The classroom teachers, parents, parent helpers, school stakeholders and the school environment may all potentially have an impact on the affect of Smart Start with (PMP). Therefore this study was conducted to evaluate these variables and their potential relationship to Smart Start with (PMP) and also to investigate as to whether Smart Start with (PMP) has an impact on the learning and behaviour of new entrant children.

3.2: Methods

According to Bowling (2002) research methods consist of the practices and techniques used to collect process and analyse the data, the sample size and methods of sampling, how the data will be collected, the choice of measurement instruments and how the data will be processed and analysed. In this study an intervention and control school was selected. They are co-educational, urban, of similar decile rating and demographic. The intervention school engages Smart Start with (PMP) whilst the control school does not.

A mixed methods approach was used in this study which is made up of quantitative and qualitative data. Interpretation of what took place was systematic to ensure that there is reliability and validity to the data set.

A systematic approach, as suggested by Greene (2008), to integrating the data was followed. This approach involved integrating quantitative and qualitative data to ensure minimal disruption to the school day for both new entrant children and classroom teachers. Principals and Boards of Trustees were made aware of the study process and they had the opportunity to participate through the survey. Equal time was spent at both School I and School C throughout Term 3 of the 2010 school year.

Quantitative data was in the form of six variables from baseline academic achievement measures from classroom teachers at both the pre and post stages of the study. Data was collected from both the intervention (School I) and control (School C) so that a comparison can be made.

Qualitative data collection was in the form of classroom teacher questionnaire (Appendix 1), classroom teacher interview (Appendix 2), stakeholder free text paper survey (Appendix 3) and one parent helper informal interview (Appendix 4). Data collection from the classroom teacher questionnaire and classroom teacher interview was post intervention; however the survey was distributed throughout the study to interested stakeholders. The survey data was collected from participants as it was completed throughout the nine week trameframe of the study.

For the purpose of this study the intervention school will be referred to as School I and the control school will be referred to as School C. School I has been delivering Smart Start with (PMP) for five years, whilst the control school has never carried out the program.

For the purpose of this study, new entrant children at both School I and School C were receiving what is normal practice at their school.

3.3: Delivery of Smart Start with (PMP)

The intervention measured was the affect of Smart Start with (PMP) on learning and behaviour in new entrant children. Smart Start with (PMP) was carried out School I only. The children participated in the floor session on a Monday to learn the movements required for the equipment session that was carried out on a Tuesday and Wednesday. The session times were all in the morning and took 25 minutes, 5 minutes was also allowed for children to take their shoes on and off at the beginning and end of the session.

Parent helpers were on a roster that was compiled at the end of Term 2. All parent helpers had a copy of the parent helper handbook. Each five minute component where the children took part in an activity in Smart Start with (PMP) was on a timer and when the buzzer went the children all moved to the next station. The five stations in Smart Start with (PMP) that children move between in sequential order are aerobic activity, hand/eye, hand/ foot co-ordination, locomotion, balance and eye tracking. All children managed themselves independently and the parent helper remained on the same station for the whole session to ensure the pause, prompt, praise philosophy was followed.

3.4: Sample

Sample size is difficult to determine with any degree of certainty. Regardless of the size the crucial factor is whether or not the sample is representative of the population. As suggested by Baumgartner & Hensley (2006) a well selected and controlled small sample is better than a poorly selected and poorly controlled large sample. Therefore this study encompassed two schools, one being the control (School C) and one being the intervention (School I). A sample of 22 participants (children) was selected from each school. Total sample size (n) = 44. This sample was selected as they were the last children to start school before the study commenced. All children in the study are aged five and in their first year of school in a new entrant classroom.

The needs of the research problem usually dictate the type of participant who will be selected for the study. According to Baumgartner & Hensley (2006) the research statement or problem indicates what participants will be used in an experimental or descriptive study. The needs of this study required a school environment, with Principals, Board of Trustees, children, classroom teachers and parents. All participating classroom teachers were Caucasian females, (n) = 6. Survey respondents were a blend of school stakeholders (n) = 8. New entrant children (n) = 44 were 85% Caucasian and 15% other ethnicities.

According to Punch (2005) in quantitative research the focus tends to be on people sampling. The basic concept most often is probability sampling directed at representativeness of some larger population. Findings may then be inferred back to that population. For the purposes of this study the five year old new entrant children selected are proposed to be representative of the larger population of five year old new entrant children in New Zealand.

As suggested by Saks and Allsop (2000) inferential statistics are the numerical techniques for making conclusions about a population based on the information obtained from a random sample drawn from the population. As discussed the random sample in this study are five year old new entrant children in their first year of primary school in New Zealand, (n) = 44, new entrant classroom teachers (n) = 6 and school stakeholders (n) = 8. Total number of participants (n) = 58. However Mayer (2010) suggests that for most statistical tests, the sample size considered large enough is 30.

3.5: Data Collection

The data collection was completed in Term 3 of the 2010 School Year. This includes baseline academic achievement quantitative data and qualitative data including questionnaires, interviews and survey.

The data collection timeline is referred to in **Table 1.**

Table 1: Data collected from School I and School C

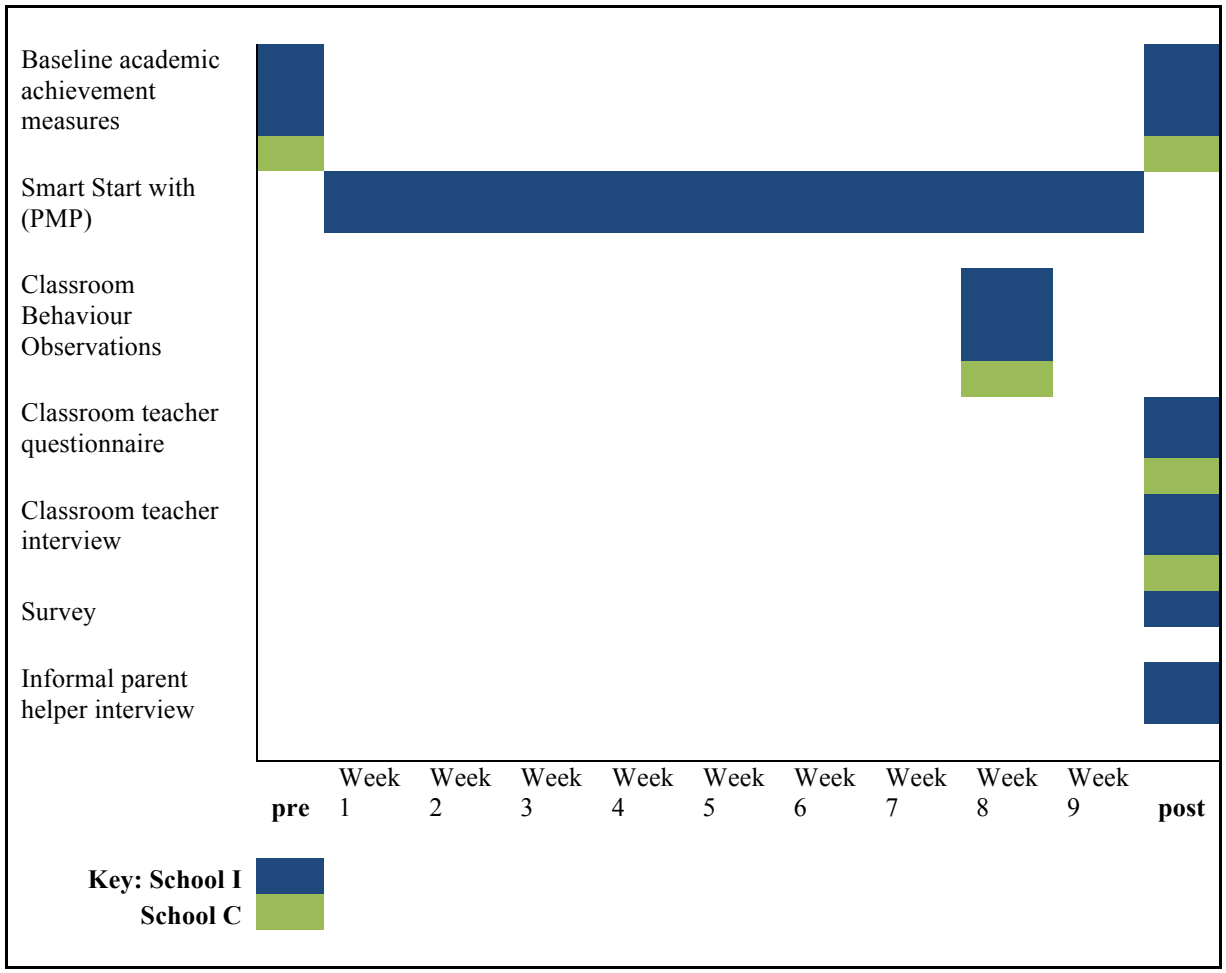


Table 1 shows the order in which data was collected to systematically measure and compare the impact of Smart Start with (PMP).

Baseline academic achievement measures were collected pre and post intervention. For the purpose of this study baseline academic achievement scores were used to measure learning. This took 30 minutes, total time was 1 hour.

The classroom behaviour observation was conducted across six classrooms at School I and School C in normal school time with minimal disruption to classroom routine. Each observation took one hour, total time six hours during the nine week intervention.

The classroom teacher questionnaire was completed post the intervention after 3pm when the school day had finished. The questionnaire took 15 minutes to complete. Total time one hour and 30 minutes.

The classroom teacher interview was conducted post intervention and after 3pm, it took 30 minutes to complete. Total time one hour. This was due to classroom teachers from School I and School C providing there time outside of normal school hours. School I interviews were conducted on an individual basis; however School C interviews were conducted with all three classroom teachers present.

The surveys were offered to all School stakeholders at School I and School C; they were completed during the nine week intervention timeframe of this study and took five minutes to complete. Total time 40 minutes.

The total time taken to collect data for this study was 10 hours and 10 minutes.

3.6: Procedure

There were two schools selected to test the hypothesis that Smart Start with (PMP) has an affect on learning and behaviour in the classroom, School I and School C. They are co-educational, urban and of similar decile rating and demographic.

The study took place in Term 3 of the 2010 school year. The intervention timeline was nine weeks. School I has delivered Smart Start with (PMP) for five years, whilst School C has never carried out the program. Participants included school stakeholders, Board of Trustees, Principals, parents, parent helpers, teacher aides and teachers (n) = 8, new entrant classroom teachers (n) = 6 and their students (n) = 44 across six classrooms. Three classrooms at School I and three classrooms at School C participated in this study. Total (n) = 6 classrooms participating in this study.

Following ethical approval on 3 August 2010 contact was made with the schools via a telephone call and meeting with the Principals. Consent from the Board of Trustees and Principals was then given to proceed with this study. Principals in turn met with their new entrant classroom teachers. The new entrant classroom teachers agreed to participate in the study.

A meeting was arranged with the classroom teachers to provide information sheets and consent forms. An evening meeting was offered to parents/ caregivers to provide more information regarding this study. Consent or assent was given in writing by the classroom teachers, Principals, Board of Trustees, parent helpers, parents and children at the beginning of this study once ethical approval had been granted.

Consent forms (Appendix 5 - 9) and participant information sheets (Appendix 10 - 14) were distributed to parents of all students in the participating classrooms (n = 6). The return rate was 100% across classrooms. Parental consent was given for (n = 44) children. Assent forms (Appendix 15) and participant information sheets (Appendix 16) were distributed to the students. The return rate was 100% across all classrooms (n = 44).

Time was spent at both School I and School C with permission from the Board of Trustees and Principals during Term 3 of the 2010 school year. This was to collect baseline academic achievement measures from classroom teachers and to conduct the classroom behaviour observations.

3.7: Measures

This study is to evaluate the independent variable Smart Start with (PMP), (cause), on the dependent variable, potential increased scores on learning and behaviour of School I (effect) which may infer an affect of Smart Start with (PMP) on new entrant learning and behaviour.

Six measures were conducted, baseline academic achievement, Classroom behaviour observations, classroom teacher interview and questionnaire, survey and informal parent helper interview to compare and evaluate the affect of Smart Start with (PMP) on learning and behaviour of five year old new entrant children. Reliability and validity of these measures were considered throughout this study.

Section 1: Baseline Academic Achievement

Participants n = (44).

Baseline academic achievement measures were collected from classroom teachers' pre and post intervention so that a comparison could be made. Data was collected from both School I and School C. Time spent with the classroom teacher to gather this data was 30 minutes pre and post intervention, total time 1 hour.

This data was made up of six variables, including counting back from 10 (including 0); identify the numerals 0 to 10 in any order, letter identification, letter identification stanine, word reading, and word reading stanine.

Counting forward and backward from 10, including 0 and reading numerals 0 – 10 in any order was selected as a measurement tool as these are commonly used by new entrant classroom teachers to identify and record what level a child is at. This numeracy assessment data tool Ministry of Education (2005) is referred to as NUMPA and reflects stages 1 and 2 of an emergent new entrant child at school. It also as it provides an indication to the teacher if a child is achieving at the expected level for their age. These basis facts in maths variables are referred to as numeracy for the purpose of this study.

The Marie Clay measures were selected, word reading and letter identification as they are widely utilised in primary schools around New Zealand as a National measure of competency in literacy. Due to this being a National measure a stanine has been created in regard to the age of the child and how they compare to other children of the same age. This measurement tool provides an indicator for teachers as to whether a child is achieving at an acceptable level in comparison to other children in New Zealand of the same age, it is also commonly used as the 6 year net diagnostic survey Ministry of Education (2011) to screen for the program reading recovery. These letter identification and word reading variables are referred to as literacy for the purpose of this study.

The numeracy and literacy variables for data collection are shown in **Table 2**.

Table 2: Baseline Academic Achievement

Participant	**Test Score**	**Stanine Group**
Numeracy level (Basic facts maths)		
Count backwards from 10 (NUMPA)		
Read the numerals to 10 in any order (NUMPA)		
Literacy level		
Letter identification score sheet (Clay, 2002)		
Word reading score sheet (Clay, 2002)		
Letter identification stanine		
Word reading stanine		

Table 2 presents the baseline academic achievement measures that were collected from classroom teachers. The pre data baseline academic achievement measures from both School I and School C was collected at the beginning of Term 3, August 2010. The post data baseline academic achievement measures were collected at the end of Term 3, September 2010.

The baseline academic achievement measures between School I and School C were compared as seen in **Table 3**.

Table 3: Academic achievement variables

School I (pre data)	intervention	School I (post data)
/	**(Smart Start with PMP)**	/
School C (pre data)	control group	School C (post data)

Table 3 presents the comparisons that were made between the six variables measured to evaluate a potential affect on new entrant learning and behaviour from the nine week intervention Smart Start with (PMP). Pre baseline academic data from School I was compared with pre baseline academic data from School C. Post baseline academic data from School I was compared with post baseline academic data from School C. These comparisons were made with the use of descriptive and inferential statistics, effect sizes and t-tests.

Please note that participants (n = 8) were excluded from the post data of letter identification and letter identification stanine due to classroom teacher error with secondary data.

Section 2: Classroom Behaviour Observation

Participants (n) = 44.

The classroom behaviour observation was completed at both the intervention and control school midway through Term 3. All participants were aged five years and in their first year of school. Each school had participants (children) in three different new entrant classrooms, therefore six observations took place. The classroom behaviour observation followed a five minutes observing children (on) and five minutes recording (off) schedule and was a total of 60 minutes long in each classroom. Total time taken to complete the six checklists was six hours.

The classroom behaviour observation checklist that measured behaviour for this study formed part of the professional development schedule for teachers on the program Smart Start with (PMP) as put together by Gill Connell (2002) from Moving Smart Ltd. (Appendix 17).

This checklist provides an evaluation diagnosis for teachers on areas of weakness in a child's readiness for formal learning. For example, an area of weakness may be body rhythm where a child is exhibiting behaviour such as poor writing or an inability to remember directions. A suggested approach is then given, such as don't put pressure on child in writing sessions and keep all directions or instructions to child's short term sequential memory limit.

The behaviour checklist aims to provide a tool to identify common behaviors' exhibited in the classroom that identify a potential area of weakness in learning and then provide suggestions through the Smart Start with (PMP) Teacher Manual of approaches to use in the classroom. Also activity cards to utilise within Smart Start with (PMP) that may potentially minimise or improve these behaviors'.

As suggested by Gable (2001) to nurture children's talents effectively, carefully watch how they react to learning opportunities. Therefore the cclassroom environment was measured by classroom observation across six classrooms at both School I and School C. Indicators for classroom environment included noise level, children engaged with learning and appropriate

seating arrangements, fresh air and sunlight for children to potentially be in the optimum place for learning.

Section 3: Classroom Teacher Questionnaire

Participants (n) = 6.

The classroom teacher questionnaire, interview questions and survey were developed for the purpose of this study to collect data from school stakeholders that aim to meet and provide answers to the objectives and research question. These include:

- Does Smart Start with (PMP) have an affect on learning?
- Does Smart Start with (PMP) have an affect on behaviour?
- Does Smart Start with (PMP) have an affect on social confidence?
- Do new entrant children have competencies measured when entering school?
- Are learning and behaviour of new entrant children linked?
- Does parent help impact on learning and behaviour?
- Are five year olds ready for formal learning?
- Is it valuable for children to have learning experiences outside classroom, particularly in the form of Smart Start with (PMP)?

An even Likert scale was used in the classroom teacher questionnaire. This scale consists of several declarative items that express a viewpoint on a topic. Respondents are typically asked Beck & Polit (2008) to indicate the degree as to which they agree or disagree with the opinion expressed by the statement. After the respondents complete a Likert scale their responses are scored. This allows scoring of the responses in a systematic fashion that will add reliability and validity to the integration of data.

The ordinal, ranked and even scale will provide data with regard to what direction the participant agrees or disagrees. Comments are asked for on each Likert scale questionnaire to ensure that the participant has the opportunity to qualify their response with more information.

The classroom teacher questionnaire was conducted on an individual basis and was completed within 15 minutes. The questionnaires were completed post 3pm at School I and School C.

There was opportunity for the classroom teachers to ask questions or seek clarification on any questions.

Teacher experience was measured by Likert scale of years being a teacher, interview discussion and classroom teacher questionnaire.

Section 4: Classroom Teacher Interview

Participants (n) = 6.

The interviews took place at School I and School C post the nine week intervention Smart Start with (PMP). At School I the interview was conducted with classroom teachers individually, however at School C the classroom teachers requested that the interview be held with all three teachers present.

All interviews were conducted after the school day had finished and there was opportunity for classroom teachers to seek clarification on questions. The interview questions were developed to provide meet the study objectives and answer the research question.

Section 5: Survey

Participants (n) = 8.

The free text paper survey was distributed to both School I and School C stakeholders, including Board of Trustees, Principals, Classroom Teachers, Teacher Aides, parents and parent helpers. The survey was conducted for this study during the nine week intervention Smart Start with (PMP).

The free text paper survey was used to gather qualitative data regarding opinion on a child's readiness for formal learning and what school stakeholders believe impacts learning and behaviour in the classroom. The surveys once completed were handed to classroom teachers for collection post intervention.

Section 6: Informal Interview

Participants (n) = 1

Parent helper opinion on Smart Start with (PMP) was measured by survey response and an informal interview whilst observing engagement of Smart Start with (PMP).

3.8: Data Analysis

(n) = 44. *Please note* in all tests other than letter identification (post) and letter identification stanine (post) where (n) = 14. This was due to teacher administration error in collection of secondary data.

The effect of the independent variable Smart Start with (PMP) was measured against the dependent variable at School I and School C to measure if there was any difference in children's' learning and behaviour when the intervention had been in place.

Both univariate and multi-variate type of analysis was used to test relationships among variables and group differences. The significance level as suggested by Poplhlth702 (2010) is usually set at 5% or 0.05. This means that we will only reject the null hypothesis if there is a 5% or less probability that we could have obtained our result (or something more extreme) by chance. For statistical significance the American Psychological Association (1999) suggests an alpha level of .05 for all statistical tests.

Quantitative data was used to evaluate the relationship between six baseline academic data dependent variables, counting back from 10, numerals in any order to 10, word identification scores, word identification stanines, letter identification scores, letter identification stanines, on both pre and post data.

Effect size of the six variables of baseline academic data was used to measure the affect of Smart Start with (PMP). An analysis of any variance (t-test) results from the control and intervention group responses will be presented. A descriptive statistical comparison of within and between difference in the pre-test and post-test data was conducted. A thematic analysis of the qualitative data was performed.

An independent-sample (t-test) was a measure used to test any variance in the data. The (t-test) is used with a two group difference against one variable. The analysis was used to measure how likely it is that the results would have happened by chance, also to analyse

whether two or more groups of subjects are different to each other on some continuous variable.

Thematic analysis was used to group together logical themes of qualitative data collected from the interviews, questionnaires and surveys. The themes were then coded using an open coding system as suggested by Liamputtong and Ezzy (2005), to search for similarities and differences between events, actions and interactions and grouping into categories. The coded themes may provide some more in-depth data with which to test the hypothesis.

Open ended questions were asked in the interviews to determine why participants felt the way they did, and did they have a particular experience that they could draw on to provide examples. Non verbal gestures such as nodding, or raising eyebrows was used to encourage further discussion.

3.9: Ethical Principals

The data collected from this study will be used for this masterate thesis research. The participant information sheet clearly states that only the research team will have access to the list of schools or people involved in the study. All information will be stored for a period of six years in a locked cabinet at the University of Auckland. The information will be destroyed after six years.

As suggested by Bowling (2002) the ethical principal governing research is that the respondents should not be harmed as a result of participating in the research, and they should give their informed consent to participate. All participants in this study were provided with information sheets and consent or assent forms. In these documents they were made aware that participation was voluntary (your choice) and that you do not have to take part in the study. Also participants were free to withdraw from the study at any time if they so wish.
Ethical principals were considered throughout this study and were reflected in participant information sheets, consent and assent forms.

Confidentiality, anonymity, informed consent, participants' right to withdraw and conflict of interest were all taken into account when working with participants in this study.

For this study, no potential risks to the participants have been identified.

3.10: Ethical Approval

The Northern Region Ethics Committee in Auckland approved this study on 3 August 2010.

Consultation was undertaken with a Maori School Teacher to ensure culturally appropriate methods were being used and the outcomes of the research either directly or indirectly benefit Maori. A letter confirming this consultation was received on 20 May 2010.

Verbal permission has been given by the authors, Judie Bulluss and Peter Coles of Smart Start with (PMP) to complete the research.

Copies of these can be found in (Appendix 18 & 19).

Summary

This chapter has reviewed the methodology for this study. It has described the methods used to collect data, the sample, measures, data analysis and procedures. Ethical issues, ethical approval and reliability and validity were also discussed. Chapter 4 will provide the research results with descriptive statistics and thematic analysis.

Chapter 4: Results

The aim of this study was to investigate whether Smart Start with (PMP) has an affect on learning, behaviour and social confidence in the formal environment of a classroom and was carried out in two Primary Schools in New Zealand; both were co-educational, urban, of similar decile rating and demographic. This chapter will present the results of the study.

School I (intervention) was selected because Smart Start with (PMP) was a part of the school curricular, whilst School C (control) did not carry out the program. School I has been delivering the (PMP) program for five years in both Terms 2 and 3. The intervention timeframe of nine weeks was in Term 3 of the 2010 Primary school year.

Mixed method research was selected to evaluate whether regular monitored activity with language follow-up in the form of Smart Start with (PMP) has an affect on learning, behaviour and social confidence in the classroom. As suggested by Greene (2008) a mixed method of enquiry aims to ensure that a full and holistic picture of the child, the environment and the program is collected. Therefore quantitative and qualitative data was collected and systematically interpreted as a child and their education encompasses the whole community and many variables impact on readiness for and engagement of formal learning.

It was predicted that the students who participated in Smart Start with (PMP) would show greater gains in academic achievement and behaviour compared to students who did not participate in the Smart Start with (PMP).

Effect size of the six variables, numeracy, count back from 10, read the numerals to 10 in any order and literacy, letter identification, letter identification stanine, word reading and work reading stanine of baseline data was used to measure the affect of Smart Start with (PMP). A descriptive statistical comparison of any variance between School I and School C was made. An analysis of any variance (t-test) results from School I and School C will be presented. To conclude a coded thematic analysis of the qualitative data was performed.

The results chapter will be presented in five sections. Section one explores learning which was measured as academic achievement. Section two illustrates the results of the classroom

behaviour observation. Section three explores the classroom teacher questionnaire in a coded thematic analysis. Section four summarises the classroom teacher interview in a coded thematic analysis. Section five illustrates the survey responses in a coded thematic analysis.

Section 4.1: Baseline Academic Achievement Measures

Baseline academic achievement measures from classroom teachers were compared both pre and post the nine week intervention. Six measures were conducted to evaluate the affect of the intervention Smart Start with (PMP) on academic achievement in the classroom. The intervention and control groups appear to be well matched. Similar results were noted on five variables and there was no statistical variance. These were counting backwards from 10, identification of numerals 0 – 10 in any order, word identification score, word identification stanine score and letter identification stanine score.

It is however, interesting to note the identifiable variance with letter identification. This was further investigated with a pre and post t-test to determine any statistical significance. The mean variance analysis (t-test) results shows that there is little variance in either pre or post intervention.

Of note was that both the intervention and the control school scored above the national stanine mean of Clay Word Reading (3) and Letter Identification (4). This indicates that children at both schools are achieving above the National average for their age in literacy.

As described in chapter 3 the numeracy scores are a combination of two variables from academic achievement measures, counting back from 10 and identification of numerals in any order. The literacy scores are a combination of two variables from the academic achievement measures including word reading and word identification.

Descriptive, inferential and effect sizes results are measured through the mean, standard deviation, effect size, degree of freedom and sample size (n) of School I and School C, over 6 variables pre and post a nine week intervention.

The univariate t-test was used on any variable that showed an indication of possible statistical significance. An alpha level of 0.05 was used as an indication of potential statistical

significance. When analyzing Likert scale responses 1 – 2 is strongly disagree, 2 – 3 is disagree, 3 – 4 is agree and 4 is strongly agree.

Table 4: Descriptive statistics for School I

	N	**mean**	**std. Deviation**
Count back 10 (pre)	22	10.50	2.345
Count back 10 (post)	17	10.94	.243
Numeral identification (pre)	22	10.36	1.432
Numeral identification (post)	18	10.78	.732
Stanine Word Reading (pre)	22	5.86	1.754
Stanine word Reading (post)	22	7.14	1.082
Stanine Letter ID (pre)	22	5.59	1.968
Stanine Letter ID (post)	9	6.44	2.242
Word Reading (pre)	22	6.91	4.689
Word Reading (post)	22	10.45	3.143
Letter Identification (pre)	22	43.77	12.055
Letter Identification (post)	22	49.45	6.745

Table 4 illustrates the descriptive statistics results for School I pre and post intervention. School I scored a higher (post) mean in all variables between pre and post scores. This demonstrates that all participants learning improved. Therefore the evidence suggests that over time (9 weeks) there was an improvement in numeracy and literacy for School I.

Overall there was an increase in the post intervention variables mean score and a reduction in the post standard deviation score. This improvement may result from time spent at school, maturation, rather than the intervention. Moreover as the study was in the early phase it is feasible that an impact may not yet be seen.

Table 5: Descriptive statistics for School C

	N	mean	std. Deviation
Count back 10 (pre)	22	6.77	5.255
Count back 10 (post)	22	10.41	.590
Numeral identification (pre)	22	9.68	2.767
Numeral identification (post)	22	10.91	.426
Stanine Word Reading (pre)	22	5.77	1.798
Stanine word Reading (post)	21	6.86	1.014
Stanine Letter Identification (pre)	14	5.57	1.453
Stanine Letter Identification (post)	14	6.43	2.138
Word Reading (pre)	22	7.05	4.562
Word Reading (post)	22	11.91	3.544
Letter Identification (pre)	14	48.36	5.401
Letter Identification (post)	14	51.36	3.522

Table 5 illustrates the descriptive statistics results for School C pre and post intervention. Results indicate an improvement in academic achievement, with both literacy and numeracy mean scores improving over the nine week timeframe of the intervention.

Overall there was an increase in the post intervention variables mean score and a reduction in the post standard deviation score. This improvement may result from time spent at school, maturation, rather than the intervention. However the results illustrate that all participants learning improved. Moreover as the study was in the early phase it is feasible that an impact may not yet be seen.

Table 6: Effect size changes over time between School I and School C

	School I	School C	Effect size
Counting back from 10	0.34	1.24	0.81
Numerals in any order	0.38	0.77	0.59
Word reading	0.91	1.20	0.84
Word reading stanine	0.90	0.77	0.44
Letter identification	0.60	0.67	1.06
Letter identification stanine	0.41	0.48	0.58

(Effect size scores: .80 = large, .50 = medium, .20 = small). (Lippincott, Williams & Wilks, 2008).

Table 6 presents the results of the effect size changes over time (independent variable) between School I and School C (dependent variable). Three variables present a large effect size change, the highest being literacy in the form of letter identification. The least effect size change was also literacy in the form of word reading stanine score. All variables showed a significant change. These changes appear to be naturally occurring over time, maturation of a new entrant five year old at School I and cannot be attributed to the intervention Smart Start with (PMP).

Effect size was used to determine how much affect Smart Start with (PMP) had on academic achievement in the classroom. Effect size takes into account sample size (n = 44), means, standard deviation (st.d) and degrees of freedom, and as Mayer (2010) suggests is the magnitude of the outcome, association or difference between groups that one observes. Therefore with (n = 44) being small, there is potential that this is going to have a very real influence on whether or not we decide to accept that a real correlation exists in the population. According to Mayer (2010, p.132) the smaller the sample size, the harder it is to find statistical significance even if one is looking for a large effect size.

Effect size findings indicate identifiable differences between School I and School C; however these appear to be naturally occurring and cannot be attributed to the intervention. They are potentially due to the classroom teachers baseline testing. Interesting to note the results indicate a dramatic improvement over time. However this can be explained through

maturation of the learning that happens for a new entrant five year old child at school over the nine week timeline that the study was conducted.

Table 7: P- value scores for Numeracy

	p-value		**Std Deviation**		**df**	
School	I	C	I	C	I	C
Count back 10 (pre & post)	.332	.003	2.42	5.048	16	21
Numeral identification (pre & post)	.181	.040	1.688	2.636	17	21

Table 7 presents the results of the two variables for numeracy (count back from 10 and numeral identification 0 - 10) measured over time between School I and School C. School I and School C were well matched in their academic achievement of numeracy; however the results illustrate there is less variance at School I than School C. The result was $p > 0.05$ for School I; therefore in this study Smart Start with (PMP) does not have an affect on numeracy.

Table 8: P-value scores for Literacy

	p-value		**Std Deviation**		**df**	
School	I	C	I	C	I	C
Word Reading Stanine (pre&post)	.000	.008	1.077	1.549	21	20
Letter ID stanine (pre&post)	.032	.075	1.667	1.657	8	13
Word reading	.000	.000	2.345	3.881	21	21
Letter Identification	**.001**	.055	7.207	5.335	21	13

Table 8 presents the results of the four variables of literacy. School I and School C appear to be well matched with similar scores on literacy. However it is interesting to note a potential variance in the letter identification t test. Further investigation was carried out in **Table 9** and **Table 10**.

Table 9: P-value scores for Letter Identification (pre)

	School I	**School C**
mean	44	37.95
St.d	12.055	5.401
p-value = 0.12		

Table 9 presents descriptive statistics that have illustrated minimal difference between School I and School C, $p > 0.05$. Therefore there was no statistical significant difference between School I and School C in terms of letter identification in the pre intervention baseline data.

Table 10: P-value scores for Letter Identification (post)

	School I	**School C**
mean	52.86	51.36
St.d	6.745	3.522
p-value = 0.06		

Table 10 presents descriptive statistics that have illustrated little difference between School I and School C, $p > 0.05$. Therefore there was no statistical significant difference between School I and School C in terms of letter identification in the post intervention baseline data. It appears the intervention of Smart Start with (PMP) had no significant affect on post letter identification.

The participants in Section 1 of the study are five year old new entrant children. All children have been at school for less than one year. Using a number of literacy and numeracy measures the two groups appear to be well matched, however there was a slight variance in letter identification, $p < 0.05$. With further t-test analysis this variance was dismissed as non significant, $p > 0.05$. Therefore in this study there was no significant statistical variance in academic achievement with the intervention Smart Start with (PMP). It is interesting to note that although the overall results concluded non-significant changes there appears to be small hints of variance, however due to the small sample size and limited timeframe it is impossible to conclude any variance.

Section 4.2: Classroom Behaviour Observation

The classroom behaviour observation was conducted in normal school time and was used to evaluate areas of weakness in a child's readiness for and engagement with formal learning through observation of behaviour exhibited. There was no disruption to the school day and minimal interaction with the observer and students. Each observation took 1 hour to complete. The observations took place across 6 classrooms in total, 3 classrooms at School I and 3 classrooms at School C. Total time to conduct six observations was six hours.

The classroom behaviour observation checklist was compared and analysed between the three classrooms in School I and the three classrooms in School C. All observations took place in the morning. It appears that the groups were well matched, however there was an identifiable difference noted in classroom 2 in School C. **Table 11** presents the types of behaviours observed and areas of weakness in readiness for and engagement with formal learning from the six classroom observations.

Table 11: Classroom Behaviour Observation

Classroom Behaviour Observed *(Behavioural signposts)*	**Area of Weakness Identified**
Short attention span Unable to sustain physical tasks	Fitness
Constant fidgeting Short attention span, can't sit still	Balance
Wanders Looks clumsy Forgets why he/she has gone to a particular place	Locomotion
Trouble with fine motor tasks, cutting, pasting, Manipulating equipment	Hand/eye/foot co-ordination
Reversal of letters Mirror writing Starts on the wrong side of page General disorganisation	Laterality/ directionality
Poor writing Unable to remember directions	Poor body rhythm
Unable to keep letters on line or an even size Bumps into things, knocks things Touches everything	Spatial awareness
Trouble controlling movements	Body image/ body control

(Connell, 2002)

School I (n) = 22

In a one hour observation conducted in each of the three classrooms at School I boys were found to exhibit an average of 22 disruptive acts per hour whilst girls exhibited 16 such acts. All three classrooms participants at School I were five year old new entrant children that are in their first year of school. The classroom environments are presented in **Table 12**.

Table 12: Classroom Environment School I

Classroom 1: Teacher for >10 years. New to the school. Studious class with book placement by the teacher presenting a challenge for the child. All children predominantly right handed.
Classroom 2: Teacher for > 10 years. Children very aware of classroom behaviour expectations. Book placement for children challenging. All children predominantly right handed.
Classroom 3: Teacher > 10 years. Studious class, examples of good behaviour positively reinforced by the classroom teacher. Book placement for children challenging. All children predominantly right handed.

Table 12 illustrates the findings of the three different classroom environments. All new entrant classroom teachers at School I have been teachers for more than ten years. They illustrate the classroom teachers at School I all followed similar behaviour expectations and classroom routines. The children appeared to be ready for, and enjoying the formal learning environment of a classroom, however the placement of workbooks for some children caused poor posture which then challenges with letter formation and letter placement. Overall the classroom environments appear to be encouraging learning activities.

All three classroom observations were conducted after the Smart Start with (PMP) session was completed in the morning, and midway through Term 3. Similar themes, such as the children's ability to focus, follow directions and sit still were noticed in all three classrooms, and the teachers appeared to follow the same philosophy of behaviour expectations and classroom routines. These expectations included listening to others, not speaking whilst others are talking; sitting still and quietly, no shouting out, putting your hand up if you required the classroom teacher's attention. Classroom routines included sanitizing hands when coming into the room, taking shoes on and off when required, knowing at which table to sit, and essentially doing the same things when entering or leaving the classroom each day.

Following the Smart Start with (PMP) equipment session the children appeared to be have good body control and in a good place to learn. Their focus was on the task at hand and this appeared to have a positive impact on the learning that was taking place. The placement of the workbook by the teacher was challenging for the child to assume good posture and the children were a mix of left and right handed, although it appeared they were predominantly right handed.

All children showed good body rhythm and timing, the classroom teachers advised they were able to competently skip

Behaviour observed across all three classrooms was fitness, balance and laterality or directionality and co-ordination. Often the yawning and fidgeting appeared evident when closer to morning tea or lunchtime. It was noted that the boys appeared to need to touch things in the classroom on their way past, or sit that bit closer to the person next to them on the mat.

The findings indicate that all children have good routines and need limited teacher interaction to prepare, take part in and return from the Smart Start with (PMP) session. Participants appeared on task and showed good fine motor skills and body control. Fidgeting, wandering and some yawning were evident once it came closer to morning tea at 10.30am. This behaviour may be attributed to the children becoming hungry and therefore losing focus on the learning task. However all children are achieving at different levels but most exhibited good posture, pencil grip and letter formation.

School I results illustrated similar behaviour between the three classrooms. This behaviour appeared to be conducive to the environment of formal learning. However boys exhibited a higher number of disruptive acts per hour over girls, boys were found to exhibit an average of 22 disruptive acts per hour whilst girls exhibited 16 such acts.

It appears feasible from the observation that behaviour exhibited in School I is not limiting the time that the teacher can spend teaching and the children can spend engaged in learning.

School C (n) = 22

In one hour observations conducted in each of the three classrooms at School C, boys were found to exhibit an average of 26 disruptive acts per hour, whilst girls exhibited 18 such acts. All three classrooms participants at School C were five year old new entrant children that are in their first year of school. The classroom environments for School C are presented in **Table 13**.

Table 13: Classroom Environment School C

Classroom 1: Teacher for >10 years. Long time at the School Ind Senior teacher of Junior School. Studious, energetic class with book placement by the teacher presenting a challenge for the child. All children predominantly right handed.
Classroom 2: Teacher for > 10 years. Classroom teacher new to this school. Children appeared non-attentive and unaware of classroom expectations, highly disrupted classroom. Book placement for children challenging. All children predominantly right handed.
Classroom 3: Teacher > 10 years. Children appeared on task and happy in their learning. Indications from behaviour exhibited were children are ready for formal learning. Book placement for children challenging. All children predominantly right handed.

Table 13 illustrates the findings of the three different classroom environments. They show the variations in behaviour in classrooms. The three new entrant classroom teachers have been teaching for more than ten years.

New entrant children in classrooms 1 and 3 appeared to be ready for and enjoying the formal learning environment of a classroom. However behaviour exhibited by new entrant children in classroom 2 indicated these children (n) = 8 were not ready for the formal learning environment of a classroom. Behaviours exhibited were calling out, inability to follow directions, inability to stay on task without direct classroom teacher supervision and general disorganization. Classroom teacher placement of workbooks across all three classrooms presented a challenge for children in terms of posture, poor pencil grip, which in turn led to poor letter formation.

All three classroom behaviour observations were carried out in the morning and mid way through Term 3 of the School year. Similar themes were noted in all three classrooms with balance and spatial awareness seeming to be the most recurrent, however classroom 2 participants exhibited more behaviours that illustrated children were not ready for formal learning.

The three classrooms were run in the same way with the teacher splitting the children into three working groups then working with one group at a time, and the other two groups working independently of the teacher. Book placement by all three teachers raised challenges

for the children's posture, pencil grip and therefore letter formation. Most children were predominantly right handed.

In **classroom 1** the teacher uses music up to six times per day for children to participate actively, getting up and moving around. This created an energetic feel to the classroom, however when on the mat children were yawning, rubbing their eyes and constantly moving around, indicating poor fitness and balance It was predominantly the boys that were constantly needing to move and even holding onto the table for balance.

Classroom teacher strategies for children to follow directions appeared to work well. These strategies included the teacher ensuring the child was listening to them by getting them to repeat back to them what the direction was. There was also much positive reinforcement of taking the real to the symbolic, for example, eyes for looking, and ears for listening, mouth for talking. Some children were showing a variance in pencil grip and letter formation, the teacher was quick to notice this and give guidance to the child.

Visual, auditory and kinesthetic activities were given to the children to explore different ways of learning the same thing. The classroom teacher was quick to add music or move the children around as soon as fidgeting or poor balance was being exhibited by the children. When a child was mirroring letters the whole class practiced with their fingers in the air the shape of the letter 'd', the teacher also explained that the letter 'd' was looking away from the sun, whilst the letter 'b' was looking toward the sun.

In **classroom 2** the behaviour observation took place straight after morning tea and playtime. The children were sitting on the mat reading a poem with the teacher. There appeared to be constant fidgeting, touching the person next to them, in-attention and calling out. The classroom environment appeared a little chaotic and behaviour indicated these children (n) = 8 were not ready for formal learning.

The children were split into three groups after much discussion and then given many directions of what they needed to do next, this appeared to create confusion and the children were unsure of what to do and took a long time to get to where the needed to go. Again two groups worked independently of the teacher whilst one group sat with the teacher and did their reading. They showed a short attention span. The children working independently were not

on task, constantly moving and calling out. One child in particular was playing with a box on his head whilst he was meant to be reading.

Once all the children had completed their reading it was back to the mat, the teacher was interrupted by constant calling out and in-attention of the children. A song was put on, and the children participated whilst sitting on the mat, this appeared to provide a level all children paying attention.

In **classroom 3** the behaviour observation took place in the morning. Both classroom 1 and classroom 3 were working together on math's artwork. Both classroom teachers were involved.

The children were working with a buddy whilst the teachers were circulating and helping when needed. There was an air of busy activity in the classroom. Most children appeared to have competent fine motor skills with cutting and pasting. A small number were off task and peering into space whilst their buddy did all the work. The children left their workspace to get something they needed and came straight back to their table without wandering, they also followed directions given by the teacher.

There was a fire drill towards the end of the class and all children stayed focused and moved in an orderly fashion to where they needed to go.

The classroom behaviour observation indicates that two of the three classrooms at School C include children who exhibit behaviours conducive to learning. These behaviours include good attention span, minimal fidgeting, good fine motor skills and good letter formation. However there was a variance in behaviour in classroom 3. The behaviours exhibited by participants (n = 8) indicate that the participants were not ready for formal learning and include short attention spans, wandering in the classroom and forgetting why they have gone somewhere and an inability to keep letters on the line or remember directions given by the teacher.

Across the three classrooms boys were found to exhibit an average of 26 disruptive acts per hour, whilst girls exhibited 18 such acts.

In the School I all there appeared to be minimal variance between the three classrooms in the behaviour exhibited by the children, however in School C there appeared to be an identifiable variance in one of the classrooms. Despite this variance of behaviour exhibited in classroom 2 at School C, both schools appear well matched in children being aware of classroom routines and teacher expectations. However across all three classrooms boys exhibited more disruptive acts per hour than girls. All six classroom teachers have been teaching for over 10 years.

Section 4.3: Classroom Teacher Questionnaire

The classroom teacher questionnaire was completed by (n) = 6 teachers at the end of the nine week intervention and took 15 minutes to complete. Thematic analysis and Likert scale responses were the instruments used to score the data. Classroom teacher comments provided a more well rounded (qualitative) and holistic picture of teacher opinion, in addition to the Likert scale sores.

Participants in the survey, classroom teacher questionnaire and classroom teacher interview had the opportunity to make additional comments. These comments were catergorised into main themes with a qualitative approach using coded thematic analysis. The most common response was coded in numerical order, for example, 1 refers to the most common response to a question on the interview, questionnaire or survey.

Length of Time in Teaching

Both School I and School C classroom teachers have been teaching for over 10 years. All classroom teachers have taken time out over that period for having children of their own. Both groups were well matched.

Table 14: Parent help in the classroom

	School (A)	**School (B)**
Teacher 1	3 agree	4 strongly agree
Teacher 2	4 strongly agree	3 agree
Teacher 3	3 agree	3 agree

Both the School I and School C were well matched in their opinion on parent help being valuable in the classroom, 66% agree parent help is valuable whilst 33% strongly agree. However interesting to note are some of the themes; School I classroom teachers suggest that it provides an opportunity for parents to see how a classroom operates and feel part of their child's learning, another adult in the classroom helps balance group dynamics and overall it depends on the parent as some of them are there for their own agenda.

School C classroom teachers suggest that they will continue to use parent help however they believe children need to learn to work independently of their parents, parents need to be trained in expectations of the classroom teacher, they are parent help not teachers and finally that some parents are helpful however some can also be troublesome.

Both School I and School C agreed it was helpful to have parent help, however both also agreed that sometimes it was more of a challenge to have parents in the classroom than not.

Table 15: Children participating in learning outside the classroom

	School (I)	**School (C)**
Teacher 1	4 strongly agree	4 strongly agree
Teacher 2	4 strongly agree	3 agree
Teacher 3	4 strongly agree	4 strongly agree

Both the groups are well matched, 83% strongly agree and 16% agree that it is valuable for children to participate in learning outside of the classroom. Several themes appeared; School I classroom teachers opinion is that learning is not just academic and learning activities outside of the classroom provide an opportunity for children to engage with learning through a different medium than the formal environment of the classroom, however School C classroom teachers opinion is that some children just prefer to stay in the classroom, however learning outside of that environment provides an opportunity for co-operation and listening to instructions in a different environment.

It appears School I and School C are similar in their opinions towards learning outside of the classroom. Both School I and School C classroom teachers agree that learning outside of the classroom may provide some of the foundation skills required for children to be in a better place to learn when in the formal environment of a classroom.

Table 16: A link between learning and behaviour

	School (I)	School (C)
Teacher 1	3 agree	2 disagree
Teacher 2	4 strongly agree	3 agree
Teacher 3	4 strongly agree	4 strongly agree

School I and School C were well matched, however it is interesting to note that there appeared to be some variance in opinion. 50% strongly agree and 35% agree that learning is linked to behaviour, however 16% disagree. This is explained further in the themes that emerged from classroom teacher comments. School I classroom teachers suggest that there may be an underlying health issue and that children struggling to learn are often disruptive in the classroom. School C classroom teachers suggest that children with delayed self-management skills may work well with the teacher but not so well independently, a child that jiggles around whilst reading may still be a successful reader and a child who does not listen or follow instruction may have difficulty learning.

The common theme between School I and School C is that if a child is struggling to listen and learn in the classroom a child can exhibit behaviour that is not conducive to learning. The two groups appear to be well matched in their opinions.

Table 17: New Zealand children and formal learning

	School (I)	School (C)
Teacher 1	3 agree	3 agree
Teacher 2	2 disagree	3 agree
Teacher 3	3 agree	3 agree

83% of classroom teachers agree that 5 year old children in New Zealand are ready for formal learning and going to school, however 16% disagree. The 16% that disagree believe that girls are ready for formal learning however boys are not. This is due in the classroom teacher's opinion that boys early years are filled more predominately with the sand pit and running around, rather than hand stands, monkey bars and drawing which may potentially provide stronger foundation skills for formal learning. Both classroom teachers at School I and School C agree that if parents are aware of expectations at school and they work with children at home in providing a variety of experiences in the early year's children will have the necessary skills to find success at school.

Classroom teachers at School I are also of the opinion that boys are not ready for school however girls are and that the classroom needs to adapt to suit the child's needs. Classroom teachers at School C agree that the classroom needs to adapt to suit a child's needs and that children learn by doing things regularly and repetitively.

It appears that both School themes are well matched. The most common theme from a classroom teacher perspective in children being ready for school is that parents have prepared their children and know what is expected of their child when they attend school and the child has had the opportunity to participate in many differing experiences.

Table 18: Measuring new entrant competencies

	School I	School C
Teacher 1	yes	yes
Teacher 2	yes	yes
Teacher 3	yes	yes

It is clear that both schools' record a child competencies when they start school, there was a 100% consensus, however there was a variance as to when and how the competencies are measured. School I classroom teachers suggest that competencies are measured when the child is settled at school and this is around the timeframe of 3 weeks. School C classroom teachers suggest also that competencies are measured when a child is settled however this timeframe is around 6 weeks.

While the groups were well matched there was a variance between at what timeframe a child settles into school. Both groups used their own competency tests, not the school entry assessment test. Competencies observed or tested by classroom teachers on some occasions were not formally documented.

All participants in this section of the study have been teachers for longer than 10 years. There was consensus (100%) that parent help is valuable in the classroom, however this was qualified by parents needing to understand clearly what their role is when in the classroom. It was agreed (100%) that it is valuable for children to participate in learning outside of the classroom. There appeared to be a variance (83%) in the opinion that learning is linked to behaviour, however this was qualified by children may work well with the teacher but not so independently. A similar variance (83%) was noted regarding five year old children being ready for formal learning. Interesting to note is the common theme that what parents do with children at home prior to school has on impact on school readiness. There was consensus (100%) that a child's competencies are measured, either formally or informally within the first few weeks of starting school.

Section 4.4: Classroom Teacher Interview

The classroom teacher interview was completed by (n) = 6 classroom teachers post intervention and took 30 minutes to complete. The interview at School I (intervention) was completed with each classroom teacher individually. The interview at School C (control) was completed with all three classroom teachers present.

The classroom teacher interview responses from School I and School C were compared and analysed as opinions and themes emerged. It appears the classroom teacher responses were well matched in their opinion that often new entrant children need time to settle into classroom routines and each child will have their own timeframe to achieve these routines

The classroom teachers were asked what differences they had noticed in children's learning and behaviour over Term 3. These differences are referred to in **Table 19**:

Table 19: Learning and Behaviour Differences

School I	**School C**
Classroom expectations established	Classroom expectations established
Routine established	Routine established
Learning scaffolding over 4 Terms	Learning scaffolding over 4 Terms
Terms 2 & 3 great for learning	Terms 2 & 3 great for learning
Improved self confidence and skills	Improved self confidence and skills
Self management improved	Self management improved
Settling in time 6 weeks	Settling in time 3 – 4 weeks
Children more focused	Improved oral language (basis for all learning)
Competent at keeping on the line	
Improved co-ordination	
Improved balance allowing children	
To sit still for longer and not fidget	
Improved reading level	

It appears that both school I and C are well matched with regard to what happens in a new entrant classroom over Terms 2 and 3 in that they are the most beneficial in terms of learning outcomes. School I note that with the children participating in the scheduled Smart Start with

(PMP) 3 times per week are physically fitter with good co-ordination and better able to cope with a school day and make the most of learning right up until the end of the school term.

Of equal value was noted the self confidence which was reflected in the classroom by trying new things and extending themselves, such as spelling where the children are confident to try new words without direction from the teacher. School C felt strongly that the teacher needs to adapt to the child's needs irrelevant of what level the child enters the new entrant classroom, however both groups agree that all children are unique and individual.

Table 20 refers to the classroom teacher's opinion on the impact of Smart Start with (PMP) on learning and behaviour.

Table 20: The impact of Smart Start with (PMP) on learning and behaviour

School I	**School C**
Co-ordination and balance improved	Children all motivated by difference things
Better able to follow instructions	Jiggling not a sign of not learning
Learn routines quickly	Teacher responsible to react to child's needs
Learn self-management strategies quickly	Child needs to be motivated to learn
Teacher able to lift expectations of the children	All children learn at different rates
Foundation skills cemented	Ensure child is happy at school, create a love of learning

All three teachers at School I made it clear in their opinion Smart Start with (PMP) did have an impact on learning and behaviour. 1 classroom teacher had not encountered Smart Start with (PMP) before and could see significant differences, these being improved gross and fine motor skills, improved balance, confidence, independence and developing of foundation physical education and gymnastic skills. This development lead the children into success in Term 4 where they take on sport related activities such as t-ball, tennis, cricket, soccer, netball and rugby.

School C noted that components of their gymnastics programme are related to activities in the Smart Start with (PMP) program, so therefore children at School C are also being exposed to perceptual motor activities, however this does not have the language follow up component.

The classroom teachers at school C are aware of Smart Start with (PMP) and overall both groups are well matched in their opinions.

Table 21 refers to the specific impact of Smart Start with (PMP) on learning and behaviour.

Table 21: Learning and behaviour

Learning	**Behaviour**
Memory	Sitting still
Keeping on the line	Minimal calling out
Self confidence	Self confidence
Self management	Self management
Try new things	Try new things
Reinforcement of the language of directionality	Allows teacher expectation to be higher

There was consensus from the teachers in School I (100%) on the impact of Smart Start with (PMP) and what it brings to their classroom for both themselves and their students. It appears that from the classroom teacher perspective it is feasible that Smart Start with (PMP) has an affect on learning and behaviour in the classroom.

Classroom teachers at School I are all agreed (100%) that Smart Start with (PMP) has an impact on learning and behaviour in the classroom.

Differences in learning outcomes for the children in the Terms that they do not participate in (PMP)

Both School I and C classroom teachers agree that Term 1 is for settling into classroom routines and expectations of the environment of formal learning. School I note that in Term 1 children do not appear to pick things up as readily and quickly as they do in Terms 2, 3 and 4. It was agreed that optimal learning is in Terms 2 and 3.

Term 4 was noted to be the time that the foundation skills, competencies and self confidence acquired in earlier Terms was utilised through children trying new things and having success in the classroom, physical activity, sport and social confidence. It is interesting to note that there was some discussion as to whether this is just the natural course of a child becoming more comfortable at school.

Smart Start with (PMP) for all children

There was (100%) consensus from School I that it was beneficial for all children to participate in Smart Start with (PMP). It appeared from classroom teacher discussion that all children were eager to participate and that all the children want to do it regardless of skill level. Also noted was that there was no reason to exclude a child as the program was able to be individualized up or down depending on skill level. Non verbal gestures included teacher 3 leaning forward with intensity when discussing how much the children enjoyed participating in Smart Start with (PMP).

Both School I and School C classroom teachers agree that knowledge of classroom expectations and routines is significant learning in the nine weeks that the study was conducted. Also agreed was the fact that learning is scaffold over the four terms of the school year. Term 1 a child is introduced to school expectations and routines. Terms 2 and 3 are the most beneficial in Terms of learning outcomes. Term 4 is consolidation and application of learning completed in Terms 2 and 3. Interesting to note Terms 2 and 3 are when the intervention school delivers Smart Start with (PMP).

There was a difference in opinion regarding the impact of Smart Start with (PMP) on learning and behaviour, this included that children need to be motivated to learn and all children are motivated to learn by different things. If a child is not motivated to learn this may be reflected through poor behaviour. School I conclude that participation in Smart Start with (PMP) provides the foundation for children to learn self-management strategies quickly, learn routines quickly, improve co-ordination and the teacher is then able to lift the expectations of what happens with both learning and behaviour within the classroom. School C concludes that the teacher is responsible for reacting to the individual child's needs.

However responses from classroom teacher interviews conclude that often new entrant children need time to settle into classroom routines and each child will have their own timeframe to achieve these routines. It was also noted from classroom teachers that with the introduction of Smart Start with (PMP) in Term 2 children appeared to be on task with routine and achieve classroom expectations faster.

Also when participating in Smart Start with (PMP) children are managing themselves with confidence and having to work together to ensure the program runs smoothly. This

confidence in self management appears to have an impact on routines, the lifting of behaviour expectations by classroom teachers and engagement in learning in the classroom.

Section 4.5: Survey

The survey was completed by (n) = 8 and was distributed throughout the Term 3 of the school year. The survey took 5 minutes to complete. All responses were returned at the conclusion of Term 3 by the classroom teacher. Coded thematic analysis was the instrument used to score the data.

New Zealand 5 year olds and readiness for formal learning

Seven themes were identified from the responses; however the most common response was that it depends on the child. Other themes identified were that boys are not ready for formal learning, however girls are. Moreover the majority of respondents opinion was that all New Zealand 5 year olds are ready for formal learning.

Also children arrive at school with varying levels of school preparation and school readiness. The home environment and early year's experiences also make a difference. It appears that opinion concludes there is a difference between boys and girls' readiness for school; however it is interesting to note opinion is that the majority of 5 year olds are ready for school and those experiences in the early year's impact on readiness for formal learning.

The most impact on learning and behaviour in a new entrant classroom

Six themes were identified and the results suggest very clearly that opinion is the classroom teacher has the most impact on learning and behaviour in the classroom. It appears that a child's readiness to learn is also a common theme as well as prior early childhood experiences. Parental attitude to school and learning, low class numbers and a balanced classroom program were also recurrent themes. Overall the number 1 theme was that classroom teachers have the most impact on learning and behaviour in a new entrant classroom.

Education outside of the classroom

There was one theme identified and this provided a clear correlation between participants agreeing that learning happens everywhere not just in the classroom. Results indicate that the most common theme from participants is that not all learning should take place in the formal

environment of a classroom and that a balanced school program should provide a variety of opportunities and experiences for learning.

Poor behaviour in a new entrant classroom

There was a lengthy response to this question by participants, however the most common theme was that the school program was poorly balanced and that a child may not have enough transition time between an early childhood environment of 'free play and self directed learning' to an environment of teacher directed formal learning. Interesting to note readiness for formal learning was commented on frequently as a way that could potentially improve behaviour.

Other themes included high class numbers, a child's lack of exposure to literacy, numeracy and learning experiences in the early years and a classroom teacher struggling to ensure all children's learning needs are met. Overall the most common response was that a school program may be too heavily focused on formal learning and not providing adequate transition time between early childhood education and school.

Poor learning in a new entrant classroom

The most common theme noted was readiness for formal learning, including that children should stay in early childhood education for longer if they are not ready for school. Other themes included the possible poor health of a child, disruptive behaviour of other children in the classroom, high class numbers and a better transition between early childhood education and school. It is interesting to note the opinions regarding how improvements to learning for new entrant children could happen and why. It appeared that opinion was about the child being ready to enter an environment of formal learning and the classroom teacher adapting to the needs of children.

Section 4.6: Parent Helper Informal Interview

Of note was a survey response and lengthy discussion with a parent helper. The parent helper has a son diagnosed with aspergers syndrome and dyspraxia when aged 10. He found his early years at school very tiring and was labeled disruptive because he found it difficult to sit still for any length of time. His lack of co-ordination and poor muscle control meant writing was especially tiring. His physiotherapist and occupational therapist were interested in Smart Start with (PMP) and advised that the activities would benefit him. After this suggestion and

consultation with his classroom teacher an early morning classroom perceptual based physical activity program was started. From this his co-ordination has improved, his concentration at school improved and his fine motor skills. His writing is now legible for the first time since starting school. The parent helper also has a daughter at school participating in Smart Start with (PMP) and her co-ordination and self confidence has improved significantly since starting the program.

This parent felt very strongly that Smart Start with (PMP) was beneficial to all children and was very happy to continue to be a parent help and watch children develop and grow.

Section 4.7: Summary

There was no significant statistical affect of Smart Start with (PMP) on academic achievement; however it is interesting to note that these results are tempered by a small sample size and the short length of intervention timeframe being only nine weeks.

However there is a dramatic difference over time as measured by the effect size over time. This difference is unable be attributed to Smart Start with (PMP) as there is a strong chance that the improvement in academic achievement may be the result of time spent at school, maturation of the participants.

There was high level support and satisfaction from teachers, parents and other school stakeholders in the classroom teacher questionnaire, classroom teacher interview and survey responses at School I that the intervention Smart Start with (PMP) has an affect on learning and behaviour.

Themes from the classroom teacher questionnaire, classroom teacher interview and survey responses have illustrated that being ready for formal learning depends on the child and that generally girls are ready for school whilst boys are not. The classroom teacher has the most impact on learning and behaviour in a new entrant classroom whilst learning happens everywhere not just in the classroom. Poor behaviour may be caused by a poorly balanced school program and the child not being ready for formal learning. Poor learning may be caused by a child not being ready for formal learning and the lack of transition between early childhood learning and formal classroom learning.

The children appeared to be in the right place or readiness to, have the opportunity for and be engaged in formal learning. Moreover this may infer that Smart Start with (PMP) may have an affect on readiness for learning and behaviour in the classroom.

Chapter 5: Discussion

This study evaluated the affect of Smart Start with (PMP) on learning, behaviour and social competence in the classroom. It examines the relationship between Smart Start with (PMP) and new entrant children. It also sought to collect data regarding the opinion and perception of classroom teachers, parents and other school stakeholders on Smart Start with (PMP).

Smart Start with (PMP) was developed by Judie Bulluss and Peter Coles (2007) as they identified children were failing to acquire the 'access skills' of reading and mathematics. It is a motor co-ordination, holistic movement, language based development program that aims to develop the child not just a particular skill, therefore contributing to better educational opportunities for children in schools.

The research design is quasi-experimental utilising a mixed method approach of enquiry which includes descriptive statistics and qualitative data. Specifically the study sought to address two questions, is there a measurable quantitative difference in learning and behaviour and secondly what do school stakeholders know, think and feel about Smart Start with (PMP). Therefore the mixed methods approach as suggested by Greene (2008) has been used to tell a story. It was predicted that Smart Start with (PMP) would have an impact on learning and behaviour in the classroom.

However this study found there was little impact on new entrant numeracy or literacy achievement that can be attributed to the intervention Smart Start with (PMP). It is interesting to note however that parents and classroom teachers agree there was an impact on foundation skills that in turn impact a child's behaviour, readiness to and engage with learning. According to Stephenson et al (2007) existing experimental studies regarding perceptual motor programmes led them to conclude that perceptual motor interventions were not an effective tool to improve academic achievement. However, as was the case in this study Goddard-Blyth (2005) suggests that higher cognitive skills such as reading and writing depend upon a child having stable balance to underpin accurate directional awareness, for example the difference between was and saw.

While there was not sufficient evidence to suggest an increase in academic achievement as a consequence of Smart Start with (PMP) the classroom behaviour observation saw some

degree of impact through behavioural signposts. Behavioural signposts provide a gauge for classroom teachers to identify whether children are, or are not engaged to learn. Moreover, this degree of impact appeared to be supporting the process of learning by cutting down on children's frustrations, which in turn allows the children to be in the right place for learning.

In the next section of the discussion we will examine the following themes; the impact of Smart Start with (PMP) on success at school, behaviour at school and social competence in new entrant children. Also the impact of Smart Start with (PMP) on classroom teachers and parents.

5.1: Success at School.

To be successful at school a child's needs firstly to attend, then whilst at school they need to engage, behave, learn and socially interact with adults and peers. Overall success at school is determined by a child being ready to learn, this includes the process of learning and the mechanics of learning. The purpose of this study was to determine what value and impact the program Smart Start with (PMP) has on the toolkit required for success at school for new entrant children.

There was little impact on new entrant baseline academic achievement measures in numeracy and literacy as a result of the nine week intervention Smart Start with (PMP). It appears feasible that this may be as a result of the short intervention timeframe and small sample size. The findings of this study are similar as Kavale and Matson (1983) who reported on a meta-analysis of perceptual motor programs which showed they had a near 0 effect size and that the affect on academic achievement was also neglible. However the Kavale and Matson (1983) study is now 27 years old, therefore further studies on perceptual motor programs with a longer duration and larger sample size may be of benefit.

However this study illustrates a number of factors relating to success at school and creating an environment where a child is engaged with learning, this includes self-concept, self-efficacy, motivation and social competence. As suggested by Hattie (2003) what a child brings to the classroom table provides 50% of the variance of success at school. The other 50% relates to teachers, peer effects, the school and home environment. Therefore if a child has the foundation skills required to bring to the classroom table at school there appears to be an impact on readiness to learn and behaviour. This was confirmed through observations of

children engaged with Smart Start with (PMP), classroom observations, classroom teacher questionnaire and interviews, survey responses and an informal parent helper interview.

School stakeholder opinion in this study was that there was an impact on the foundation skills required for success at school and these include the mechanics of learning, being ready to or engaged with learning. Such skills as co-ordination and balance improved, increased ability to follow instructions and learn routines quickly. Therefore the classroom teacher is able to lift expectations of the children both with learning and behaviour.

In this study parents, teachers and school stakeholders agree with the Ministry of Education (2009) that successful learning and experiences in the early years are crucial to continued engagement and success with learning throughout their schooling and beyond. Successful learning in the early years is a prerequisite if they are to remain engaged and achieving in education as they progress through the system.

Foundation skills critical for readiness for formal learning according to Bulluss & Coles (2007) is motor skills. A child's motor development according to Cooke (2002) should follow a developmental sequence. A child working through developmentally appropriate stages will generally achieve these milestones, however a child put into a position they are not developmentally ready for may cause a change or delay in the developmental sequence. This may impact on success at school through a child not being developmentally ready to learn.

Therefore according to the Ministry of Education (2010) foundation skills acquired in early childhood are critical to success at school. This includes the mechanics of learning where skills such as gross and fine motor skills, good posture, concentration and child – teacher engagement impact on learning. According to school stakeholders in this study Smart Start with (PMP) provides the opportunity for children to experience and become competent in the mechanics of learning that impact on success in the classroom. Once children have engaged in the program they are more on task, focussed and able to concentrate for longer periods of time.

When a new entrant child starts school at the chronological age of five their motor development may not be adequate to support the skills required to engage with learning. The authors of Smart Start with (PMP) wrote the program to provide an opportunity within school

time for children to experience sequential activities that can be individualised up or down. This study confirmed through classroom teacher questionnaire and interview responses that motor development in children engaged with the program was improved.

As suggested by Tayler (2006) a more unified approach to learning should be approached in both early childhood and school systems and that attention should be given to transition challenges faced by young children as they enter school. If the transition is too abrupt or handled without care there is the risk of regression and failure. School stakeholders in this study confirm there is an impact on readiness to learn and behaviour as a result of participation in Smart Start with (PMP). This includes keeping letters on the line, confidence to try new things and minimal calling out. Therefore utilising Smart Start with (PMP) to increase foundation skills in the later stages of early childhood education may be of benefit to minimise the transition challenges to school.

During the early years of a child's life they learn constantly, but as Rossmanith (2002) suggests the learning is not definable. According to Rossmanith (2002) there appears to be newly coined phrases such as the 'bubble wrap generation' where parents comment about their own carefree childhoods and how this has changed today with children leading far more restricted lives. Moreover these restrictions may affect children by way of limiting independent exploration and risk taking. Therefore there may be an impact on a child's physical, cognitive and emotional development. Sequential activities in Smart Start with (PMP) provide children an opportunity to experience a release of tension, self development strategies and take controlled risks as parent helpers follow the pause, prompt, praise philosophy throughout the program. The pause, prompt, praise approach allows the child to attempt and find success with the activity without direct instruction from an adult, however the adult is there to provide assistance should it be needed.

According to Bulluss & Coles (2007) Smart Start with (PMP) offers a learning, fun experience for children outside of the classroom. Classroom teachers and parent helpers provide an environment of safety whilst following the pause, prompt, praise philosophy. Observation of children engaged in the Smart Start with (PMP) program confirmed self-management strategies were being consolidated and classroom teacher questionnaire responses confirmed that learning experiences outside of the classroom are beneficial. Furthermore Rudolf Steiner suggests (cited in Goddard Blythe, 2005) that prior to the seventh

year a child's primary mode of learning should be through activity and experience also Absolum (2006) suggests that in the early years at school a child's learning should begin with a variety of experiences. Therefore Smart Start with (PMP) is primarily focused on children in the year groups 0 – 3, ages 5 – 8.

According to Markova (1996) a learning style is typically determined by age seven, in some cases it can change but not often. The challenge for classroom teachers as indicated in questionnaire and interview responses is that children are all different and enter school with varying levels of skill and development with regard to formal learning. It appears critical that a new entrant classroom provides a well-balanced program to engage all three pathways to learning, visual, auditory and kinesthetic.

Through observation of children engaged in Smart Start with (PMP) there was evidence of the opportunity to experience activities engaging the three learning pathways of visual, auditory and kinesthetic. This was through the cue cards that show what to do at each activity, parent helpers explaining the activity if required and children engaging with the activity. The language follow-up component of the Smart Start with (PMP) program consolidates the journey of the real experience in the floor and activity session to the symbolic experience of the classroom.

It has been suggested by Markova (1996) that each learning style is like an instrument in an orchestra, children need to know what instrument is theirs and how they fit into the orchestra. Smart Start with (PMP) provides a well-balanced program in terms of children experiencing the three pathways to learning. This provides an opportunity for classroom teachers to observe children and ensure that curriculum delivery meets the needs of the children and ensures a readiness and opportunity to learn.

According to Katz and McClellan (1991) there are actually two sides to the readiness issue: getting children ready for school, (ready to learn) and getting schools ready for children (opportunity to learn). This study found that for children to be successful at school both in and out of the classroom the competency of foundation skills was vital, these included, gross and fine motor skills (for pencil grip and letter formation), good balance, concentration and focus (for sitting on the mat), good co-ordination (exhibiting less clumsiness) and locomotion (for moving from one place to another without wandering, ability to skip, hop and jump).

However in this study classroom teacher opinion is that all new entrant children start school with differing levels of readiness. The challenge lies therein for the school, parents and classroom teacher to provide an environment that provides a well balanced program and encourages opportunity for learning. School stakeholder opinion was that Smart Start with (PMP) provides that environment.

Readiness to learn is also indicated through learning outcomes and behaviour exhibited by the new entrant child. Less than adequate learning outcomes may be the result of a child not being ready to, engaged with, or in the right place to learn. Often specific behaviours exhibited in a classroom environment are suggested to be, Connell (2003) a result of a weakness in an area of learning. This was also discovered to be commonplace in this study through classroom behaviour observations, Smart Start with (PMP) observations and interview discussion with new entrant classroom teachers, School C exhibited higher levels of disruption in the classroom overall than School I.

Furthermore according to the Ministry of Education (2010) the best results occur in schools that have a dual focus on behaviour and academic achievement, rather than viewing them as separate issues requiring different approaches. Smart Start with (PMP) encompasses specific, sequential activities that impact on new entrant children's opportunity to learn by way of providing foundation skills that allow the child to be ready to learn and exhibiting behaviour that indicates engagement with learning. Therefore providing an environment which supports competencies being secured to ensure a child is in the right place to learn

5.2: Behaviour

School stakeholders including parents and classroom teachers were of the opinion that sequential activities in Smart Start with (PMP) are worthwhile and add value to the school curriculum in providing a well-balanced school program. Behaviour exhibited at the classroom observations indicate an impact on children and their ability to be on task for formal learning. Children at School I appeared more relaxed, co-ordinated and able to stay on task for longer, these children also demonstrated less disruptive acts per hour.

This study supports findings suggested by the Ministry of Education (2010) that the best results occur in schools that have a dual focus on behaviour and academic achievement. It identified that classroom behaviour had an impact on classroom environment, classroom organisation and new entrant children getting things done in a timely fashion without

interruptions. According to school stakeholders Smart Start with (PMP) had an impact on the foundation skills required to find success in the classroom such as concentration and focus. Therefore Smart Start with (PMP) had an impact on behaviour and as Absolum (2006) suggests get the behaviour right and the learning takes care of itself.

Behavioural signposts, such as a child's ability to put their hand up rather than shouting out and sitting attentively on the mat, in the mechanics of learning are indicators for the classroom teacher of areas of weakness in learning. In essence Gable (2001) suggests that to nurture a child's talents effectively, carefully watch how they react to learning opportunities. Classroom teachers and parents in this study support that Smart with (PMP) provides an opportunity to observe new entrant children and their reaction to the activities, therefore providing a window into any areas of weakness of learning. Furthermore the classroom program is able to be adjusted accordingly.

According Cohen & Stern & Balahan (1983) children communicate with us through their eyes, the quality of their voices, their body postures, their gestures, their mannerisms, their smiles, their jumping up and down and their listlessness. Classroom teachers in this study observe these behaviours daily and provide learning opportunities to keep children engaged. Opinion concluded that Smart Start with (PMP) is an ideal way to observe children engaging in activities; moreover it provides a learning environment outside of the classroom. Parent helpers suggest that this learning environment is safe, secure and builds child confidence. Furthermore this suggests that a child who is engaged appears to be exhibit behaviour conducive to learning. The Ministry of Education (2010) initiative, 'positive behaviour for learning' concurs that behaviour and academic achievement appear to be linked in regard to creating an environment for children where there is an opportunity to learn.

Part of the Ministry of Education (2010) positive behaviour for learning action plan is for teachers to identify children starting school who are at risk; these will be referred to as Year one indicators. These indicators have not yet been developed. The classroom behaviour observation as part of this study indicates behavioural signposts for areas of weakness in learning and provides suggested approaches for classroom teachers to follow. Therefore when engaging Smart Start with (PMP) the classroom teacher has a useful tool with which to monitor and evaluate behaviour and implement change to the classroom program where required.

Of particular interest to this study are three points that the success of the 'positive behaviour for learning' that the Ministry of Education (2010) iniative will be measured on is that children and young people are more engaged and achieving at school, schools increasing opportunity to learn environments and practitioners delivering programmes that are being continually evaluated and improved. Potentially Smart Start with (PMP) could be valuable in achieving these outcomes.

This study found that the program Smart Start with (PMP) had an impact on behaviour which in turn led to the classroom being an environment of engagement with teacher and student where interruptions were minimal and children managed themselves well without teacher direction. This appeared to allow more time for the teacher to proceed with the job of teaching and the children to absorb and be engaged with the learning that was happening that day. Risk taking in trying new words and writing their own sentences, reduced sense of "I might not be able to do that" to "I am confident to try that". This concurs with The Ministry of Education (2010) 'positive behaviour for learning' aim that minimising disruptive behaviour in schools will improve a child's engagement with learning.

Classroom teacher interviews and questionnaires confirmed that classroom teachers were highly satisfied with the impact and classroom behaviour was improved as a result of children participating in Smart Start with (PMP). In particular the ability to sit on mat for longer with improved concentration, also focus and attention to tasks. With concentration improved a child was then freed up to give and receive feedback from peers and classroom teacher with confidence, therefore a different and higher level of engagement was achieved as a result of engaging in Smart Start with (PMP).

Furthermore as illustrated by this study behaviour impacts on classroom organisation. The impact was on classroom organisation and getting things done in a timely and efficient fashion. As a result of classroom observations in this study School I new entrant children managed well when working independently of the teacher, this included minimising frustrations, children following directions without wandering and minimal between child disruptions. Acquiring confidence with these skills supports the process of learning, therefore as classroom teachers suggest higher level learning is achieved and classroom organisation is not disrupted.

As a result of this study it appears behaviour is intrinsically linked to a new entrant success at school and school stakeholder opinion is that Smart Start with (PMP) has an impact on behaviour. However despite some impact on behaviour exhibited there is not enough evidence to say overall.

5.3: Social Competence

School is about social learning and interaction with peers, adults and the environment. Webster-Stratton & Lindsay (1999) suggest that children lacking emotional and social competence often fail to access the curriculum and disrupt mainstream classes with their challenging behaviours. Lack of social or physical skills in the playground may result in limited interaction with peers, isolation and general unhappiness at school. There appeared to be an impact on a child's self confidence as a result of the Smart Start with (PMP) program which provided valuable social skills and integration into school life. In particular a parent helper in this study suggests that her daughter has significantly improved co-ordination and confidence as a result of participating in Smart Start with (PMP). Therefore foundation skills acquired as a result of engagement in the program supports utilisation of emotional and social confidence to interact with others.

Early childhood experiences may or may not provide a foundation for social readiness at school. If a child starts school with limited social readiness Smart Start with (PMP), as suggested by parents and classroom teachers provides a foundation for building a child's confidence and self-esteem. Classroom teacher opinion in this study concludes that all children arrive at school with varying degrees of social confidence, engaging in the program Smart Start with (PMP) allows an opportunity for a child to interact with peers, parent helpers and classroom teachers in a secure environment that is neither the classroom nor the playground. This opportunity may result in a child making a new friend of their classmate which may potentially transfer into school life in the playground where friends and having someone to play with are critical to a child's confidence and feelings about school. It appears feasible that if a child is happy and relaxed in the playground, they may also be happy and relaxed in the classroom.

For a new entrant child school is about perceptions, navigation, learning and interacting with peers, teachers and others in the school environment. Classroom teacher opinion in this study was that there appeared to be an impact on a child's ability to manage themselves

independently and work in with others. The Ministry of Education initiative positive behaviour for learning (2010) supports this finding. Foundation skills for being at school are consolidated as a result of engaging with Smart Start with (PMP) and these in turn support learning.

Classroom teachers' interview discussions indicate that a classroom teacher is unable to pay one-to-one attention to a child in their classroom all the time, therefore it is critical to a child's success at school that they can interact with peers, other children and stay on task independently of classroom teachers. As suggested by Belcher (2006) children identified the social skills of being friendly toward others and following classroom organisation as important factors. Furthermore the actions and interactions suggest their ability to relate to others, manage themselves, and to participate and contribute influenced their accession of numeracy learning.

In this study school stakeholder opinion is that Smart Start with (PMP) offers a child the opportunity to learn with their peers, classroom teacher and parent helpers whilst also providing an opportunity to learn through their own process of trial and error. Therefore the program provides an opportunity for children to be in the right place for formal learning in terms of social readiness. Gable (2001) agrees and suggests that some children enjoy learning, through talking and sharing with others while other children prefer to learn on their own through a process of trial and error. Some children favour a combination of both.

Regardless of a child's preferred level of social interaction, with the help of caring adults, most children can learn to understand themselves and understand the needs, thoughts and feelings of others. Learning about others and about themselves helps children to feel positive about themselves and their abilities to understand and get along with others. The parents and classroom teachers opinion in this study was that children acquired self management, self confidence, self-esteem and co-operation skills when engaged in Smart Start with (PMP) program. These skills transferred into the classroom where children were more confident to take risks with learning, such as attempting new words when reading.

Further study by Gable (2001) suggests that adults can nurture a child's positive self-esteem and social readiness by helping them discover what they are good at. Part of a child's self-esteem comes from feeling competent and skilled at something he or she enjoys, therefore the

planning of learning opportunities with a child's unique personality in mind is critical. Classroom teacher opinion is that the activities in Smart Start with (PMP) that can be individualised up or down depending on skill level provides an opportunity for a child to experience positive feelings about themselves and success with what they are doing.

According to Mazoni, Southwood, Temple, Rhodes, Virji-babul and Purves (2007) the formula for building children with good self-esteem is building positive self perceptions of competence. These perceptions of competence can be positively influenced through mastery experiences. A mastery experience is where a child is learning new skills that are within her or his cognitive or physical capacity. Smart Start with (PMP) provides an environment of sequential activities that can be individualised up or down depending on a child's level of competence, therefore allowing a mastery experience for the child. As suggested by classroom teachers and parent helpers Smart Start with (PMP) provides the environment where children engage with a mastery experience, this experience is then transferred to the classroom where self-confidence to interact with peers and adults is increased.

The social factor of playground interaction with peers in play is critical to the success of a new entrant child at school. As suggested by Belcher (2006) a classroom observation of new entrant children observed them struggling with their role as a learner in a new environment. Ways of relating to others is uppermost in their minds, they are learning to manage themselves and participate and communicate in whole class and small group settings. It also appeared from classroom teacher interview and questionnaire responses in this study that there was an impact foundation skills such as self management and turn taking as a result of engagement in Smart Start with (PMP). These skills were then utilised in the playground as children worked together to solve problems for example with situations such as who was going down the slide first.

An impact on academic achievement and classroom behaviour may result if a child is unhappy at school, has no friends and no skills to make friends as suggests the Ministry of Education (2010), moreover this impacts on learning as a whole. This suggests that a new entrant child with low social skills and lack of confidence in the playground may affect learning and behaviour in the classroom. Governments in New Zealand with the initiative 'positive behaviour for learning' and Australia's 'kids matter' initiative appear to be working towards ensuring a child and their school are prepared for learning.

Positive behaviour for learning as suggested by the Ministry of Health (2010) is based on studies that show the best results occur in schools and centres that have a dual focus on behaviour and academic achievement. Year one indicators for early identification of poor behaviour are being developed to establish how classroom teachers can identify children starting school who are at risk. According to school stakeholder opinion participation in Smart Start with (PMP) provides an opportunity for new entrant children to increase competency in foundation skills critical to ensure success at school. In this study school stakeholder opinion clearly suggests that certain behaviours impact on learning, and programs need to be in place to support the children, parents and school community.

Furthermore positive social interaction with peers and adults is vital to succeeding in the way of life at school. Classroom teachers suggest that Smart Start with (PMP) is a high quality way for new entrant children to learn self-management skills, such as lunch needs to be finished before going to play and working in with others when waiting in line for the drinking fountain. These foundation skills appear critical for supporting learning and behaviour, interacting confidently with peers and overall success at school.

5.4: Classroom teachers and parents

Despite little impact on academic achievement classroom teaches and parents exhibit a high level of satisfaction with Smart Start with (PMP). This may be due in part to Smart Start with (PMP) providing a mechanism to support children's foundation skills for learning outside the formal environment of the classroom. The opportunity to observe children enables provision of structured feedback to children and parents. This is through evaluation of skills and the planning of a well balanced program to meet the learning needs of children. Furthermore this allows a higher level of engagement, evaluation and feedback between child, parent and classroom teacher.

According to Belcher (2006) a new entrant classroom teacher may benefit from understanding the philosophy of the learning environment from which their new entrant children have come to assist and ease a child's transition to school. Fostering links between early childhood and primary school teachers may result in a closer alignment and more holistic environment for new entrant children. The philosophy of the Smart Start with (PMP) program, according to Bulluss & Coles (2007) is a holistic, movement, language based development program that aims to develop the whole child resulting in competency of learning foundation skills and self

confidence. Confidence in the physical world generally leads to confidence in yourself and your cognitive world. Therefore it may be of value to engage the Smart Start with (PMP) program in an early childhood environment to build on learning foundation skills and support the transition to school.

Classroom teachers and parents high level of satisfaction with Smart Start with (PMP) concur that perceptual motor programs are much more than just throwing and catching, Furthermore Wilkins (2007) suggests that a perceptual motor development program offers children an opportunity to strengthen their skills and succeed at a variety of activities, therefore allowing for their fuller participation in school and social events. Moreover the enrichment of perceptual motor skills appears to affect the overall development of the learning potential of children.

Each of the five activity stations in Smart Start with (PMP) has a parent helper to ensure safety and to provide a pause, prompt, praise approach which includes positive feedback to children. School stakeholder opinion is that children receiving encouragement from parent helpers and the classroom teacher results in the child feeling good about themselves and school. Furthermore studies suggest Margusity (2010) that when it comes to education seeing just isn't believing; it is understanding. In this study responses from a parent helper found that being a part of Smart Start with (PMP) provided them an insight into what challenges their new entrant child is facing when at school and how with some words of encouragement from them children exhibited a higher level of confidence with the activities.

It is also noted, Javier (2010) that children of parents who are involved in school, whether it be with homework or a school activity are likely to be much more successful learners than children without involved parents. Smart Start with (PMP) provides an opportunity and mechanism for a parent to support, be involved and engaged with their child at school. Furthermore classroom teacher opinion is that parent help is valuable at school.

As a result of a schools engagement with Smart Start with (PMP) parents have the opportunity to be involved with their child's learning and evaluate how they interact with their peers, particularly in the first year of school. Being a parent help on the Smart Start with (PMP) program allows a parent the opportunity to support their child and classroom teacher.

Perception from parents was a high level of satisfaction with the Smart Start with (PMP) program.

The overall impact for parents and classroom teachers was high levels of satisfaction with the opinion that the foundations for learning, behaviour conducive to learning and social confidence were achieved in part as a result of a child's participation in Smart Start with (PMP). Therefore in this study parents and classroom teachers were very satisfied that Smart Start with (PMP) creates an environment where a child acquires competence in the foundation skills valuable for learning. Therefore the child has a greater opportunity to learn which may impact on overall success at school.

Chapter 6: Conclusion

This final chapter summarises the findings of this study on whether Smart Start with (PMP) has an affect on learning and behaviour in a new entrant classroom. The philosophy of Smart Start with (PMP) is based on the belief that children need to develop perceptions and understandings of themselves and the world they live in. Above all Smart Start with (PMP), according to founders Judie Bulluss and Peter Coles (2007) aims to give children the confidence to direct their own world to suit their best interests.

The research design is quasi-experimental and utilises a mixed method approach of enquiry which includes descriptive statistics and qualitative data. Data collected from new entrant children, classroom teachers, parents and school stakeholders in the form of baseline academic achievement measures, classroom behaviour observation, classroom teacher questionnaire, classroom teacher interview, survey and informal parent helper interview provides the information with which to evaluate the effectiveness of Smart Start with (PMP) on learning and behaviour in the classroom. The data was collected in normal school time which ensured minimal disruption to normal classroom routines.

For the purpose of this study the intervention school was referred to as School I and the control School C. The perceptual motor program Smart Start with (PMP) was referred to as Smart Start with (PMP). School I has delivered Smart Start with (PMP) program for five years whilst School C has never carried out the program. The intervention timeline was nine weeks in Term three of the 2010 year.

There was little impact and no specific direct relationship between Smart Start with (PMP) and academic achievement, indeed this study concludes as does Kavale and Matson (1983) that perceptual motor programs affect on academic achievement was neglible. However Smart Start with (PMP) appears to impact readiness to learn, behaviour, social confidence, motivation, and engagement with learning. This is important because as Hattie (2003) suggests the school achievement is 50% dependent upon what the child brings to the table of learning. The important factors are self efficacy, self concept, motivation, engagement and being comfortable at school.

School stakeholder opinion is that Smart Start with (PMP) provides competency in foundation skills in the general school readiness areas. This in turn adds to the skills that a new entrant child brings to the table of formal learning in the classroom to ensure success at school and future learning.

This study found some changes in new entrant child behaviour, however there was not enough evidence to be conclusive. There was a strong perception and high level of satisfaction from classroom teachers and parents to indicate that Smart Start with (PMP) provides a foundation of readiness to learn for new entrant children. Moreover, as the study was in the early phase with a small sample size it is feasible that an impact may not yet be seen.

Parent and classroom teacher opinion indicate a child engaged in Smart Start with (PMP) develops self confidence and motivation that is transferred both into the classroom and the school environment where social interaction with peers and adults is crucial to being comfortable at school. The program also provides an opportunity for children to experience a transition time between an early childhood environment of free play and self directed learning to the formal environment of a classroom in the first year of school through the program encompassing the three learning pathways of visual, auditory and kinesthetic.

Classroom teacher opinion concludes that engagement with the program allows them an opportunity to evaluate children from their classroom and their areas of weakness in terms of school readiness. It also provides a platform from which a well balanced classroom program was able to be established to meet the varied needs of the children, therefore providing classroom teachers with a mechanism to support children's learning.

At no point did this study measure overall opportunity to learn. This was potentially as it is too hard to measure. However this study concludes that the program Smart Start with (PMP) impacts on a child's engagement with and social confidence at school, including the classroom environment and school playground. Furthermore it provides an opportunity to build on the foundation skills required to ensure a readiness to and engagement with learning.

As a consequence of completing this study several outcomes for children, parents and classroom teachers were unable to be measured; these were a child's readiness to learn and the school providing an environment where there is an opportunity for the child to learn.

However this study illustrates the impact of Smart Start with (PMP) on a number of factors relating to a new entrant child's readiness to learn, including concentration, focus, self-management, self-confidence and social confidence both inside and outside of the classroom. According to the Ministry of Education (2010) these skills are crucial to success at school and engagement with future learning.

Therefore this study adds to the limited evidence based data regarding perceptual motor programs. In particular it evaluates the impact of perceptual motor program Smart Start with (PMP) on new entrant learning and behaviour. This study presents evidence based information to schools and early childhood education on the value of delivering Smart Start with (PMP).

6.1: Limitations and challenges

Due to the limited timeframe of the intervention timeline of nine weeks and the small sample size (n) = 44 there was not the expected impact on academic achievement. However there was an impact on the mechanics of learning, indicated by behaviour exhibited, a higher level in a child's self-concept, motivation, self-efficacy and managing-self strategies. These in turn facilitate the child feeling better about them which promotes a readiness and opportunity to learn.

The limited response rate (n) = 8 on the school stakeholder free text survey allowed only minimal opinions to be gathered. Therefore this limited response did not provide a large school stakeholder representative sample. There are limitations in measures, intervention timeline and sample size.

In this study there was no measure of readiness to and opportunity to learn. Therefore future investigation into appropriate measures of variables would provide data that benefit and provide a higher level of robustness to this study.

According to Belcher (2006) children in her study were spending 45 minutes on numeracy in the classroom prior to participating in Smart Start with (PMP) however with the introduction of Smart Start with (PMP) this timeframe reduced to 20 minutes. It appears there may be a perception that the activities in Smart Start with (PMP) do not support a school curriculum.

Therefore it may be valuable for schools running the program to ensure adequate professional development for teachers and school stakeholders is available to ensure the full benefits and impact of the Smart Start with (PMP) program are achieved and understood.

Furthermore if Smart Start with (PMP) is not delivered in the way that it was intended by the authors Bulluss and Coles (2007) there is a real risk the benefits and impact of the program are compromised. Therefore it is crucial the school stakeholders, including classroom teachers, parents, Principals, Board of Trustees understand the components of Smart Start with (PMP) to ensure maximum impact on competency of foundation school readiness skills for children.

6.2: Recommendations:

This mixed method study focused on the impact of Smart Start with (PMP) on new entrant learning and behaviour in the classroom. It indicated that the program had little impact on baseline academic achievement however there was an impact on the acquisition of competency in the foundation skills required for success at school. Useful themes emerged from the study and these could be further explored through the following recommendations.

From the findings in this study it appears worthwhile and valuable for schools to implement the program Smart Start with (PMP) in the first years at school to assist children in acquiring the foundation skills to find success at school and future learning.

It also appears valuable that schools delivering Smart Start with (PMP) provide regular professional development opportunities for school stakeholders running the program, classroom teachers, parent helpers and teacher aides. Principals and Board of Trustee members may also benefit from professional development to ensure there is school commitment to implementing Smart Start with (PMP).

Schools that deliver Smart Start with (PMP) to ensure the program is adequately resourced with appropriate equipment, Teacher Manuals and parent help. This is to ensure the impact of the program is not lost and it is delivered as it was intended. These can be resourced from Gill Connell at Moving Smart Ltd in Christchurch.

Introducing Smart Start with (PMP) to the early childhood sector may be of value to assist in transition to school and potentially reduce the one in five children that are not achieving in numeracy and literacy at an acceptable level.

A large trial of Smart Start with (PMP) in the form of longitudinal or National level study would provide a valid measure of the impact of the program on readiness or foundation skills required for success at school. It would be valuable for schools delivering Smart Start with (PMP) to monitor, review and evaluate their findings so that a National database can be established.

6.3: Summary

This study concludes that there was little impact on academic achievement as a result of the program Smart Start with (PMP); however there was a high level of satisfaction from classroom teachers, parents and school stakeholders. Opinion was that Smart Start with (PMP) builds on competency in foundation skills for new entrant children that are critical to ensuring a readiness to learn and overall success at school.

Furthermore this study found that Smart Start with (PMP) impacts on a new entrant child's engagement with learning, including new entrant children exhibiting behaviour conducive to learning. Social confidence when interacting with peers and adults provided the basis for a new entrant child being comfortable at school. Therefore school stakeholder opinion in this study on Smart Start with (PMP) is that there is an impact on engagement with learning and behaviour.

Overall Smart Start with (PMP) provided an environment where a new entrant child has the opportunity to learn and build on the foundation skills necessary to be successful at school.

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Appendix 1

Perceptual Motor Program Smart Start with (PMP) – Does It Affect Learning and Behaviour in the Classroom?

Research Team: Janet Clinton (Principal Investigator), Wendy Pirie (Researcher)

Teacher Questionnaire

(Please circle your response)

1. How long have you been a teacher?

> 1year	3years	5years	10years	<10years

Comments:_____

_____

_____

_____

2. In your opinion is parent help valuable in the classroom?

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

Comments:_____

_____

_____

_____

3. In your opinion is it valuable for children to participate in learning outside of the classroom?

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

Comments

4. In your opinion is learning linked to behaviour?

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

Comments:_____

_____

_____

_____

5. In your opinion are 5 year old children in New Zealand ready for formal learning?

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

Comments:_____

_____

_____

_____

6. In your classroom do you record a child's competencies when they first start school?

No	week 1	week 2	week 3	<week 4

Comments:_____

_____

_____

_____

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Appendix 2

Perceptual Motor Program Smart Start with (PMP) – Does It Affect Learning and Behaviour in the Classroom?

Research Team: Janet Clinton (Principal Investigator), Wendy Pirie (Researcher)

Interview Questions: Teachers (intervention)

1. What differences have you noticed in learning and behaviour in the time the research has been conducted?
2. In your opinion does Smart Start with (PMP) have an impact on learning and behaviour?
3. If yes, what specifically on learning and what specifically on behaviour?
4. If no, why not?
5. Do you see differences in learning outcomes for the children in the Terms that they do not participate in the Smart Start with (PMP) program?
6. Do all children in your classroom benefit from the Smart Start with (PMP) program? If yes how exactly?

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Appendix 3

Perceptual Motor Program Smart Start with (PMP) – Does It Affect Learning and Behaviour in the Classroom?

Research Team: Janet Clinton (Principal Investigator), Wendy Pirie (Researcher)

Survey

1 In your opinion are 5 year olds in New Zealand ready for formal learning when they turn 5?

2 In your opinion what has the most impact on learning and behaviour in a new entrant classroom?

3 In your opinion is education outside of the classroom valuable and why?

4 In your opinion what causes poor behaviour in a new entrant classroom? What could improve behaviour and why?

5 In your opinion what causes poor learning in a new entrant classroom? What could improve learning and why?

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Survey 20 May 2010

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Appendix 4

Perceptual Motor Program Smart Start with (PMP) – Does It Affect Learning and Behaviour in the Classroom?

Research Team: Janet Clinton (Principal Investigator), Wendy Pirie (Researcher)

Interview Questions: Parent Helpers

1 In your opinion was your 5 year old child ready for formal learning when they went to school?

2 Did your child attend any early childhood education centre?

If yes, what centre and for who long?

If no, why not?

3 Did you see an improvement in the skills of the children during the time they were participating in Smart Start with (PMP)?

If yes, what were the improvements?

How would those improvements help the child or teacher in the classroom?

4 In your opinion are behaviour and learning linked?

How?

Does this affect the classroom environment?

5 Did you see value in the children participating in Smart Start with (PMP)?

What specifically?

If not, what could be done better?

6 In your opinion what has the most impact on learning?

Nutrition Home environment Readiness for formal learning Exercise

TeacherEarly Childhood Education

7 In your opinion what has the most impact on behaviour?

Nutrition Home environment Readiness for formal learning Exercise

TeacherEarly Childhood Education

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Appendix 5

Perceptual Motor Program Smart Start with (PMP) – Does It Affect Learning and Behaviour in the Classroom?

Consent Form: (Parents/ guardians)

Research Team: Janet Clinton (Principal Investigator), Wendy Pirie (Researcher)

THIS CONSENT FORM WILL BE HELD FOR A PERIOD OF SIX YEARS

I have read and understood the information sheet dated 20 May 2010 for people taking part in the research perceptual motor program Smart Start with (PMP) - Does it affect learning and behaviour in the classroom? The purpose of this research is to determine whether Smart Start with (PMP) has any affect on learning and behaviour in the classroom.

I understand that an assurance has been given by the Principal/BOT that my decision to participate and allow my child to participate, or not, in the research will in no way affect my child's grades or any general relations with your school.

I have had the opportunity to discuss this research and I am satisfied with the answers I have been given.

I understand that taking part in this research is voluntary and I and my child are free to withdraw at any stage without penalty.

I can withdraw any information given at anytime and up till 13 October 2010.

I understand that any information I provide will be confidential and that no material that will identify me or my child will be used in any research reports.

I understand that the data will be stored in a secure location for a period of six years after the completion of the study and that after this period it will be destroyed.

I have had time to consider whether I want, or want my child to participate or not.

I know who to contact if I have any questions about the study.

I would like to take part in a 10 minute survey (please circle) yes no

I _____ consent to take part in this research.

I _____ consent to allow my child

_____ to take part in this research.

Signed: _____ Date: _____

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Appendix 6

Perceptual Motor Program Smart Start with (PMP) – Does It Affect Learning and Behaviour in the Classroom?

Consent Form: (Classroom Teachers)

Research Team: Janet Clinton (Principal Investigator), Wendy Pirie (Researcher)

THIS CONSENT FORM WILL BE HELD FOR A PERIOD OF SIX YEARS

I agree to take part in this research.

I have read and understood the information sheet dated 20 May 2010 for people taking part in the research perceptual motor program Smart Start with (PMP) – does it affect learning and behaviour in the classroom. The purpose of this research is to determine whether Smart Start with (PMP) has any affect on learning and behaviour in the classroom.

I understand that the Principal and BOT has given an assurance that my decision to participate, or not, in the research will in no way affect my employment or general relations with my school.

I have had the opportunity to discuss this research and I am satisfied with the answers I have been given.

I understand that taking part in this research is voluntary and I am free to withdraw at any stage without penalty.

I can withdraw any information at any time and up till 13 October 2010.

I understand that any information I provide will be confidential and that no material that will identify me or my school will be used in any research reports.

I understand that the data will be stored in a secure location for a period of six years after the completion of the study and that after this period it will be destroyed.

I have had time to consider whether I want to participate or not.

I know who to contact if I have any questions about the study.

I know I can request a summary of findings from the researcher at the conclusion of the study.

I would like to take part in a 10 minute survey (please circle) yes no

I _____ consent to take part in this research.

Signed: _____ Date: _____

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Appendix 7

Perceptual Motor Program Smart Start with (PMP) – Does It Affect Learning and Behaviour in the Classroom?

Consent Form: (Principal/ Board of Trustees)

Research Team: Janet Clinton (Principal Investigator), Wendy Pirie (Researcher)

THIS CONSENT FORM WILL BE HELD FOR A PERIOD OF SIX YEARS

I give permission for the researcher to approach and invite school stakeholders to participate in the research. I give an assurance that the decision of the teachers and or parents to participate, or not, will not affect their employment (teachers), grades (for students), and general relations with the school.

I have read and understood the information sheet dated 20 May 2010 for people taking part in the perceptual motor program Smart Start with (PMP) – does it affect learning and behaviour in the classroom. The purpose of this research is to determine whether Smart Start with (PMP) has any affect on learning and behaviour in the classroom.

I have had the opportunity to discuss this research and I am satisfied with the answers I have been given.

I understand that taking part in this research is voluntary and I am free to withdraw at any stage without penalty.

I can withdraw any information I have given at any time up till 13 October 2010.

I understand that any information I provide will be confidential and that no material that will identify me or my school will be used in any research reports.

I understand that the data will be stored in a secure location for a period of six years after the completion of the study and that after this period it will be destroyed.

I have had time to consider whether I want to participate or not.

I know who to contact if I have any questions about the study.

I know I can request a summary of findings from the researcher at the conclusion of the study.

I would like to take part in a 10 minute survey (please circle) yes no

I _____ consent to take part in this research.

Signed: _____ Date: _____

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Appendix 8

Perceptual Motor Program Smart Start with (PMP) – Does It Affect Learning and Behaviour in the Classroom?

Consent Form: (Parent helpers/ guardians)

Research Team: Janet Clinton (Principal Investigator), Wendy Pirie (Researcher)

THIS CONSENT FORM WILL BE HELD FOR A PERIOD OF SIX YEARS

I have read and understood the information sheet dated 20 May 2010 for people taking part in the research perceptual motor program Smart Start with (PMP) - Does it affect learning and behaviour in the classroom? The purpose of this research is to determine whether Smart Start with (PMP) has any affect on learning and behaviour in the classroom.

I understand that an assurance has been given by the Principal/BOT that my decision to participate and allow my child to participate, or not, in the research will in no way affect my child's grades or any general relations with your school.

I have had the opportunity to discuss this research and I am satisfied with the answers I have been given.

I understand that taking part in this research is voluntary and I and my child are free to withdraw at any stage without penalty.

I can withdraw any information given at anytime and up till 13 October 2010.

I understand that any information I provide will be confidential and that no material that will identify me or my child will be used in any research reports.

I understand that the data will be stored in a secure location for a period of six years after the completion of the study and that after this period it will be destroyed.

I have had time to consider whether I want, or want my child to participate or not.

I know who to contact if I have any questions about the study.

I would like to take part in a 10 minute survey (please circle) yes no

I _____ consent to take part in this research.

I _____ consent to allow my child

_____ to take part in this research.

Signed: _____ Date: _____

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Appendix 9

Perceptual Motor Program Smart Start with (PMP) – Does It Affect Learning and Behaviour in the Classroom?

Consent Form: (teacher aide, school nurse)

Research Team: Janet Clinton (Principal Investigator), Wendy Pirie (Researcher)

THIS CONSENT FORM WILL BE HELD FOR A PERIOD OF SIX YEARS

I agree to take part in this research.

I have read and understood the information sheet dated 20 May 2010 for people taking part in the research perceptual motor program Smart Start with (PMP) – does it affect learning and behaviour in the classroom. The purpose of this research is to determine whether Smart Start with (PMP) has any affect on learning and behaviour in the classroom.

I have assurance from the Principal and Board of Trustees that my decision to participate, or not, in the research will in no way affect my employment, or general relations with my school.

I have had the opportunity to discuss this research and I am satisfied with the answers I have been given.

I understand that taking part in this research is voluntary and I am free to withdraw at any stage without penalty.

I can withdraw any information I have given at any time and up till 13 October 2010.

I understand that any information I provide will be confidential and that no material that will identify me or my school will be used in any research reports.

I understand that the data will be stored in a secure location for a period of six years after the completion of the study and that after this period it will be destroyed.

I have had time to consider whether I want to participate or not.

I know who to contact if I have any questions about the study.

I know I can request a summary of findings from the researcher at the conclusion of the study.

I would like to take part in a 10 minute survey (please circle) yes no

I _____ consent to take part in this research.

Signed: _____ Date: _____

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Appendix 10

Perceptual Motor Program Smart Start with (PMP) – Does It Affect Learning and Behaviour in the Classroom?

Participant Information Sheet (Parents/ guardians)

Research Team: Dr Janet Clinton (Principal Investigator), Wendy Pirie (Researcher)

Your school has been invited to participate in an evaluation of the program Smart Start with (PMP).
Wendy Pirie is completing a Masters Thesis through the University of Auckland to evaluate whether the program Smart Start with (PMP) has an affect on learning and behaviour in the classroom. Dr Janet Clinton is the research supervisor and Senior Lecturer Health Systems based at the University of Auckland. Smart Start with (PMP) (perceptual motor program) is a motor co-ordination, movement and language based development program run in school time. It gives children hearing (auditory), seeing (visual) and doing (kinesthetic) experiences, allowing them to make perceptual judgments, with the pause, prompt, praise philosophy being followed by parent helpers.

What is the research for?
The research is being conducted to gather evidence based data regarding the Smart Start with (PMP) program. Data is also required from a school not participating in the program so that a comparison can be made. The research will contribute to an existing body of knowledge regarding perceptual motor programs with language follow up and the impact that it has on learning and behaviour in the classroom.

Why is our school invited to take part?
A total of two schools will be invited to participate in the research. Your school has been chosen as it is either already running the Smart Start with (PMP) program or your school is a co-educational school of similar decile rating that is not running the Smart Start with (PMP) program. We wish to emphasize that participation is voluntary (your choice) and that you or your child does not have to take part in the research. You are free to withdraw from the research at any time if you so wish.

What is involved if we do participate?
Wendy Pirie the researcher will visit your school between August and December 2010. Wendy will offer an information evening to parents. A survey (10 minutes) will be available

to all stakeholders in the school, Principals, Board of Trustee members, school nurse, teachers, parents/ guardians, teacher aides, parent/ guardian helpers. At each school classroom behaviour observation checklist (1 hour) at the beginning and end of the research (2 hours total) will be conducted by Wendy. The observation is completed by Wendy and there will be no direct interaction with the children.

The researcher is seeking your permission to observe your child in the classroom (1 hour) at the beginning and end of the research, total time (2 hours). You or your child is able at any time to state that they do not wish to be a part of the research. Please discuss this research invitation with your child.

An assurance has been given by the Principal/BOT that your decision to participate and allow your child to participate, or not, in the research will in no way affect your child's grades or any general relations with your school.

What will happen to the information?
All information participants provide will be confidential and any other information provided will be treated in an anonymous way. Participant's names (i.e. that of the school, school children, teachers, parent helpers or any other school staff member or student) will not be used in any reports or publications about the research. Information which may identify any of the schools involved in this research will not be used or given to anyone else. Only the research team will have access to the list of schools or people involved in the research.

A summary of the research will be available on request.

Participants can withdraw their information at any time and up till 13 October 2010. All information will be stored for a period of six years in a locked cabinet at the University of Auckland. The information will be destroyed after six years.

How can I find out more?
If you have any questions about the research please contact the Principal Investigator Dr Janet Clinton, Health Systems, School of Population Health, Tamaki campus, Crn Merton & Morrin Rds, Glen Innes, Auckland, 09 373 7599 extn 89143 j.clinton@auckland.ac.nz; or Wendy Pirie researcher Health Systems, School of Population Health, Tamaki campus, Crn Merton & Morrin Rds, Glen Innes, Auckland, ph 0273 296 776, wpir003@aucklanduni.ac.nz
Head of Department: Dr Toni Ashton, Health Systems, School of Population Health, Tamaki campus, Crn Merton & Morrin Rds, Glen Innes, Auckland, ph 09 3737 599 ext 86136 toni.ashton@auckland.ac.nz. The Chairperson, University of Auckland Human Participants Ethics Committee, Private Bag 92019, Auckland, ph 09 373 7599 ext 87311.

If you have any queries or concerns regarding your rights as a participant in this research study, you can contact an independent Health & Disability Advocate. This is a free service provided under the Health & Disability Commissioner Act: Telephone (NZ wide): 0800 555 050; free fax (NZ wide): 0800 2787 7678 (0800 2 SUPPORT); Email: advocacy@hdc.org.nz

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Appendix 11

Perceptual Motor Program Smart Start with (PMP) – Does It Affect Learning and Behaviour in the Classroom?

Participant Information Sheet (classroom teacher)

Research Team: Dr Janet Clinton (Principal Investigator), Wendy Pirie (Researcher)

Your school has been invited to participate in an evaluation of the program Smart Start with (PMP).
Wendy Pirie is completing a Masters Thesis through the University of Auckland to evaluate whether the program Smart Start with (PMP) has an affect on learning and behaviour in the classroom. Dr Janet Clinton is the research supervisor and Senior Lecturer Health Systems based at the University of Auckland. Smart Start with PMP (perceptual motor program) is a motor co-ordination, movement and language based development program run in school time. It gives children hearing (auditory), seeing (visual) and doing (kinesthetic) experiences, allowing them to make perceptual judgments, with the pause, prompt, praise philosophy being followed.

What is the research for?
The research is being conducted to gather evidence based data regarding the Smart Start with (PMP) program. Data is also required from a school not participating in the program so that a comparison can be made. The research will contribute to an existing body of knowledge regarding perceptual motor programs with language follow up and the impact that it has on learning and behaviour in the classroom.

Why is our school invited to take part?
A total of two schools will be used. Your school has been chosen as it is either already running the Smart Start with (PMP) program or your school is a co-educational school of similar decile rating that is not running the Smart Start with (PMP) program. We wish to emphasize that participation is voluntary (your choice) and you do not have to take part in the research. You are free to withdraw from the research at any time if you so wish.

What is involved if we do participate?
Wendy Pirie the researcher will visit your school between August and December 2010. A survey (10 minutes) will be available to all stakeholders in the school, Principals, Board of Trustee members, teachers, parents/ guardians, school nurse, teacher aides and parent helpers.

You will be invited to participate in an interview (30 minutes) and classroom teacher questionnaire (15 minutes) at the end of the research and gathering of secondary data (30 minutes) at the beginning and end of the research, total time 1 hour. A combined total of 1 hour 55 minutes is the time required to participate in the research.

An assurance has been given by the Principal /BOT that your decision to participate, or not, in the research will in no way affect your employment or general relations with your school.

What will happen to the information?
All information participants provide will be confidential and any other information provided will be treated in an anonymous way. Participant's names (i.e. that of the school, school children, teachers, parent helpers or any other school staff member or student) will not be used in any reports or publications about the research. Information which may identify any of the schools involved in this research will not be used or given to anyone else. Only the research team will have access to the list of schools or people involved in the research.

A summary of the research will be available on request.

Participants can withdraw their information at any time and up till 13 October 2010.

All information will be stored for a period of six years in a locked cabinet at the University of Auckland. The information will be destroyed after six years.

How can I find out more?
If you have any questions about the research please contact the Principal Investigator Dr Janet Clinton, Health Systems, School of Population Health, Tamaki campus, Crn Merton & Morrin Rds, Glen Innes, Auckland, 09 373 7599 extn 89143 j.clinton@auckland.ac.nz; or Wendy Pirie researcher Health Systems, School of Population Health, Tamaki campus, Crn Merton & Morrin Rds, Glen Innes, Auckland, ph 0273 296 776, wpir003@aucklanduni.ac.nz
Head of Department: Dr Toni Ashton, Health Systems, School of Population Health, Tamaki campus, Crn Merton & Morrin Rds, Glen Innes, Auckland, ph 09 3737 599 ext 86136 toni.ashton@auckland.ac.nz. The Chairperson, University of Auckland Human Participants Ethics Committee, Private Bag 92019, Auckland, ph 09 373 7599 ext 87311.

If you have any queries or concerns regarding your rights as a participant in this research study, you can contact an independent Health & Disability Advocate. This is a free service provided under the Health & Disability Commissioner Act: Telephone (NZ wide): 0800 555 050; free fax (NZ wide): 0800 2787 7678 (0800 2 SUPPORT); Email: advocacy@hdc.org.nz

APPROVED BY THE UNIVERSITY OF AUCKLAND HUMAN PARTICIPANTS ETHICS COMMITTEE ON 3/8/10 FOR (3) YEARS
REFERENCE NUMBER 2010/341

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Appendix 12

Perceptual Motor Program Smart Start with (PMP) – Does It Affect Learning and Behaviour in the Classroom?

Participant Information Sheet (Principal/ Board of Trustees)

Research Team: Dr Janet Clinton (Principal Investigator), Wendy Pirie (Researcher)

Your school has been invited to participate in an evaluation of the program Smart Start with (PMP).
Wendy Pirie is completing a Masters Thesis through the University of Auckland to discover as to whether the program Smart Start with (PMP) has an affect on learning and behaviour in the classroom. Dr Janet Clinton is the research supervisor and Senior Lecturer Health Systems based at the University of Auckland. Smart Start with (PMP) (perceptual motor program) is a motor co-ordination, movement and language based development program run in school time. It gives children hearing (auditory), seeing (visual) and doing (kinesthetic) experiences, allowing them to make perceptual judgments, with the pause, prompt, praise philosophy being followed.

What is the research for?
The research is being conducted to gather evidence based data regarding the Smart Start with (PMP) program. Data is also required from a school not participating in the program so that a comparison can be made. The research will contribute to an existing body of knowledge regarding perceptual motor programs with language follow up and the impact that it has on learning and behaviour in the classroom.

Why is our school invited to take part?
A total of two schools will be used. Your school has been chosen as it is either already running the Smart Start with (PMP) program or your school is a co-educational school of similar decile rating that is not running the Smart Start with (PMP) program. We wish to emphasize that participation is voluntary (your choice) and your school does not have to take part in the research. You are free to withdraw from the research at any time if you so wish.

What is involved if we do participate?
Wendy Pirie the researcher will visit your school between August and December 2010. Wendy will offer an information evening to parents. All stakeholders will be invited to complete a survey (10 minutes), Principals, Board of Trustee members, school nurse, teacher

aides, teachers, parent/ guardians and parent helpers. New entrant classroom teachers will also be invited to complete a questionnaire (15 minutes) and interview (30 minutes) at the end of the research. At the end of the research parent helpers on the Smart Start with PMP program will be invited to complete an interview (15 minutes). Children in the (control) class and children in the (intervention) class will be observed (with their permission) for behaviour on both pre and post session for 1 hour each, total 2 hours. There is no direct interaction between the researcher and the children.

The researcher is asking for your permission to approach all the participants in the research. An assurance is also asked that the decision of the stakeholders including teachers, teacher aides, school nurse, parents/guardians and parent/ guardian helpers to participate or not will not affect their employment (teachers), grades (for students), and general relations with the school.

What will happen to the information?
All information participants provide will be confidential and any other information provided will be treated in an anonymous way. Participant's names (i.e. that of the school, school children, teachers, parent helpers or any other school staff member or student) will not be used in any reports or publications about the research. Information which may identify any of the schools involved in this research will not be used or given to anyone else. Only the research team will have access to the list of schools or people involved in the research.

A summary of the research will be available on request.

Participants can withdraw their information at any time and up until 13 October 2010. The data collected will be used to write a Master's Thesis. All information will be stored for a period of six years in a locked cabinet at the University of Auckland. The information will be destroyed after six years.

How can I find out more?
If you have any questions about the research please contact the Principal Investigator Dr Janet Clinton, Health Systems, School of Population Health, Tamaki campus, Crn Merton & Morrin Rds, Glen Innes, Auckland, 09 373 7599 ext 89143 j.clinton@auckland.ac.nz; or Wendy Pirie researcher Health Systems, School of Population Health, Tamaki campus, Crn Merton & Morrin Rds, Glen Innes, Auckland, ph 0273 296 776, wpir003@aucklanduni.ac.nz
Head of Department: Dr Toni Ashton, Health Systems, School of Population Health, Tamaki campus, Crn Merton & Morrin Rds, Glen Innes, Auckland, ph 09 3737 599 ext 86136 toni.ashton@auckland.ac.nz. The Chairperson, University of Auckland Human Participants Ethics Committee, Private Bag 92019, Auckland, ph 09 373 7599 ext 87311.

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Appendix 13

Perceptual Motor Program Smart Start with (PMP) – Does It Affect Learning and Behaviour in the Classroom?

Participant Information Sheet (Parent helpers/ guardians)

Research Team: Dr Janet Clinton (Principal Investigator), Wendy Pirie (Researcher)

Your school has been invited to participate in an evaluation of the program Smart Start with (PMP).
Wendy Pirie is completing a Masters Thesis through the University of Auckland to evaluate whether the program Smart Start with (PMP) has an affect on learning and behaviour in the classroom. Dr Janet Clinton is the research supervisor and Senior Lecturer Health Systems based at the University of Auckland. Smart Start with (PMP) (perceptual motor program) is a motor co-ordination, movement and language based development program run in school time. It gives children hearing (auditory), seeing (visual) and doing (kinesthetic) experiences, allowing them to make perceptual judgments, with the pause, prompt, praise philosophy being followed by parent helpers.

What is the research for?
The research is being conducted to gather evidence based data regarding the Smart Start with (PMP) program. Data is also required from a school not participating in the program so that a comparison can be made. The research will contribute to an existing body of knowledge regarding perceptual motor programs with language follow up and the impact that it has on learning and behaviour in the classroom.

Why is our school invited to take part?
A total of two schools will be invited to participate in the research. Your school has been chosen as it is either already running the Smart Start with (PMP) program or your school is a co-educational school of similar decile rating that is not running the Smart Start with (PMP) program. We wish to emphasize that participation is voluntary (your choice) and that you or your child does not have to take part in the research. You are free to withdraw from the research at any time if you so wish.

What is involved if we do participate?
Wendy Pirie the researcher will visit your school between August and December 2010. Wendy will offer an information evening to parents. A survey (10 minutes) will be available

to all stakeholders in the school, Principals, Board of Trustee members, school nurse, teachers, parents/ guardians, teacher aides, parent/ guardian helpers. At each school classroom behaviour observation checklist (1 hour) at the beginning and end of the research (2 hours total) will be conducted by Wendy. The observation is completed by Wendy and there will be no direct interaction with the children.

The researcher is seeking your permission to observe your child in the classroom (1 hour) at the beginning and end of the research, total time (2 hours). You or your child is able at any time to state that they do not wish to be a part of the research. Please discuss this research invitation with your child.

An assurance has been given by the Principal/BOT that your decision to participate and allow your child to participate, or not, in the research will in no way affect your child's grades or any general relations with your school.

What will happen to the information?
All information participants provide will be confidential and any other information provided will be treated in an anonymous way. Participant's names (i.e. that of the school, school children, teachers, parent helpers or any other school staff member or student) will not be used in any reports or publications about the research. Information which may identify any of the schools involved in this research will not be used or given to anyone else. Only the research team will have access to the list of schools or people involved in the research.

A summary of the research will be available on request.

Participants can withdraw their information at any time and up till 13 October 2010. All information will be stored for a period of six years in a locked cabinet at the University of Auckland. The information will be destroyed after six years.

How can I find out more?
If you have any questions about the research please contact the Principal Investigator Dr Janet Clinton, Health Systems, School of Population Health, Tamaki campus, Crn Merton & Morrin Rds, Glen Innes, Auckland, 09 373 7599 extn 89143 j.clinton@auckland.ac.nz; or Wendy Pirie researcher Health Systems, School of Population Health, Tamaki campus, Crn Merton & Morrin Rds, Glen Innes, Auckland, ph 0273 296 776, wpir003@aucklanduni.ac.nz
Head of Department: Dr Toni Ashton, Health Systems, School of Population Health, Tamaki campus, Crn Merton & Morrin Rds, Glen Innes, Auckland, ph 09 3737 599 ext 86136 toni.ashton@auckland.ac.nz. The Chairperson, University of Auckland Human Participants Ethics Committee, Private Bag 92019, Auckland, ph 09 373 7599 ext 87311.

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Appendix 14

Perceptual Motor Program Smart Start with (PMP) – Does It Affect Learning and Behaviour in the Classroom?

Participant Information Sheet (teacher aide, school nurse)

Research Team: Dr Janet Clinton (Principal Investigator), Wendy Pirie (Researcher)

Your school has been invited to participate in an evaluation of the program Smart Start with (PMP).
Wendy Pirie is completing a Masters Thesis through the University of Auckland to discover as to whether the program Smart Start with (PMP) has an affect on learning and behaviour in the classroom. Dr Janet Clinton is the research supervisor and Senior Lecturer Health Systems based at the University of Auckland. Smart Start with (PMP) (perceptual motor program) is a motor co-ordination, movement and language based development program run in school time. It gives children hearing (auditory), seeing (visual) and doing (kinesthetic) experiences, allowing them to make perceptual judgments, with the pause, prompt, praise philosophy being followed**.**

What is the research for?
The research is being conducted to gather evidence based data regarding the Smart Start with (PMP) program. Evidence is also required from a school not participating in the program so that a comparison can be made. The research will contribute to an existing body of knowledge regarding perceptual motor programs with language follow up and the impact that it has on learning and behaviour in the classroom.

Why is our school invited to take part?
A total of two schools will be used. Your school has been chosen as it is either already running the Smart Start with (PMP) program or your school is a co-educational school of similar decile rating that is not running the Smart Start with (PMP) program. We wish to emphasize that participation is voluntary (your choice) and you do not have to take part in the research. You are free to withdraw from the research at any time if you so wish.

What is involved if we do participate?
Wendy Pirie the researcher will visit your school between August and December 2010. A survey (10 minutes) will be available to all stakeholders in the school, Principals, Board of Trustee members, teachers, parents/ guardians, school nurse, teacher aides and parent helpers.

An assurance has been given by the Principal /BOT that your decision to participate, or not, in the research will in no way affect your employment or general relations with your school.

What will happen to the information?
All information participants provide will be confidential and any other information provided will be treated in an anonymous way. Participant's names (i.e. that of the school, school children, teachers, parent helpers or any other school staff member or student) will not be used in any reports or publications about the research. Information which may identify any of the schools involved in this research will not be used or given to anyone else. Only the research team will have access to the list of schools or people involved in the research.

A summary of the research will be available on request.

Participants can withdraw their information at any time and up till 13 October 2010.

All information will be stored for a period of six years in a locked cabinet at the University of Auckland. The information will be destroyed after six years.

How can I find out more?
If you have any questions about the research please contact the Principal Investigator Dr Janet Clinton, Health Systems, School of Population Health, Tamaki campus, Crn Merton & Morrin Rds, Glen Innes, Auckland, 09 373 7599 extn 89143 j.clinton@auckland.ac.nz; or Wendy Pirie researcher Health Systems, School of Population Health, Tamaki campus, Crn Merton & Morrin Rds, Glen Innes, Auckland, ph 0273 296 776, wpir003@aucklanduni.ac.nz
Head of Department: Dr Toni Ashton, Health Systems, School of Population Health, Tamaki campus, Crn Merton & Morrin Rds, Glen Innes, Auckland, ph 09 3737 599 ext 86136 toni.ashton@auckland.ac.nz. The Chairperson, University of Auckland Human Participants Ethics Committee, Private Bag 92019, Auckland, ph 09 373 7599 ext 87311.

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Appendix 15

Perceptual Motor Program Smart Start with (PMP) – Does It Affect Learning and Behaviour in the Classroom?

Assent Form: (children)

Research Team: Janet Clinton (Principal Investigator), Wendy Pirie (Researcher)

THIS ASSENT FORM WILL BE HELD FOR A PERIOD OF SIX YEARS
(parents/ caregivers please read to children)

I have been read and I understand the participant information sheet dated 20 May 2010. My parents/ guardians have talked to me about the research in my classroom.

I understand why I have been selected.

I understand that I can choose if I want to take part in this research in my classroom and I can say I do not want to do it anymore at any time without being in trouble.

I can take away any information about me at anytime and up till 13 October 2010.

I understand that any information I give will not be told to anyone else.

I have had time to think about whether I want Wendy to watch me in my classroom or not.

I know who to talk to if I have any questions.

Please circle YES if you would like to take part.

Please circle NO if you do not want to take part.

Name: _____

Date: _____

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Appendix 16

Perceptual Motor Program Smart Start with (PMP) – Does It Affect Learning and Behaviour in the Classroom?

Participant Information Sheet (child)

Research Team: Dr Janet Clinton (Principal Investigator), Wendy Pirie (Researcher)

(parents/ caregivers please read to children)

Hello my name is Wendy Pirie. 

I would like to spend some time in your classroom and will come to your class over the next 8 weeks.

When I am in your class I will do some writing and you will notice me. You will know that I am not one of your teachers. You can talk to me and we can get to know each other. You can ask me about my work whenever you want to.

If you are not sure or worried come and talk to me about it or ask one of your teachers or parents/ caregivers about this. It is your choice if you want to take part or not and you can take away any information about you at anytime and up till 13 October 2010.

Yes  Unsure  Worried 

I am finding out about a program called Smart Start with (PMP). This is a program where you do movement activities inside and outside of the classroom, after the movement activities you do some work with your teacher about what you learned. You may not do this program at your school. I am trying to find out if there is a difference between a school that runs the program and one that does not.

I hope that we can do this together. It will be great to meet you, your classmates and your teacher.

How can I find out more?
If you have any questions about the research please contact the Principal Investigator Dr Janet Clinton, Health Systems, School of Population Health, Tamaki campus, Crn Merton & Morrin Rds, Glen Innes, Auckland, 09 373 7599 extn 89143 j.clinton@auckland.ac.nz; or Wendy Pirie researcher Health Systems, School of Population Health, Tamaki campus, Crn Merton & Morrin Rds, Glen Innes, Auckland, ph 0273 296 776, wpir003@aucklanduni.ac.nz
Head of Department: Dr Toni Ashton, Health Systems, School of Population Health, Tamaki campus, Crn Merton & Morrin Rds, Glen Innes, Auckland, ph 09 3737 599 ext 86136 toni.ashton@auckland.ac.nz. The Chairperson, University of Auckland Human Participants Ethics Committee, Private Bag 92019, Auckland, ph 09 373 7599 ext 87311.

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Appendix 17

Perceptual Motor Program Smart Start with PMP – Does It Affect Learning and Behaviour in the Classroom?

Research Team: Janet Clinton (Principal Investigator), Wendy Pirie (Researcher)

Researchers - Classroom observation checklist

(Checklist from one hour observation with 5 minute on, 5 minute off data collection)

Fitness

In-attention	observation	1 - 50
Yawning	observation	1 - 50

Balance

Constant fidgeting	observation	1 - 50
Can't sit still	observation	1 – 50

Locomotion

Wanders	observation	1 – 50
Looks clumsy	observation	1 - 50

Eye hand, eye foot Co-ordination

Trouble with fine motor tasks,	1 - 50
Cutting, pasting, manipulating equipment.	

Laterality/ Directionality

Reversal of letters, mirror writing	1 - 50
Starts on wrong side of page	

Body Rhythm

Unable to remember directions	1 – 50

Spatial awareness

Bumps into things, knocks things,	1 - 50
Touches everything	

Body Image/ Control

Trouble controlling movements	1 - 50

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REFERENCE NUMBER 2010/341

Office of the Vice-Chancellor
Ethics and Biological Safety Administration

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Facsimilie: 64 9 373 7432

UNIVERSITY OF AUCKLAND
HUMAN PARTICIPANTS ETHICS COMMITTEE

13 August 2010

MEMORANDUM TO:

Dr Janet Clinton / Wendy Pirie
School of Population Health

Re: Application for Ethics Approval (Our Ref. 2010 / 341)

The Committee met on 11-August-2010 and considered the application for ethics approval for your project titled "Perceptual Motor Program "Smart Start with PMP" Does It Affect Learning and Behaviour in the Classroom?".

Ethics approval was given for a period of three years.

The expiry date for this approval is 11/08/2013.

If the project changes significantly you are required to resubmit a new application to the Committee for further consideration.

In order that an up-to-date record can be maintained, it would be appreciated if you could notify the Committee once your project is completed.

Please contact the Chairperson if you have any specific queries relating to your application. The Chair and the members of the Committee would be most happy to discuss general matters relating to ethics provisions if you wish to do so.

ALL COMMUNICATIONS WITH THE UAHPEC REGARDING THIS APPLICATION SHOULD INDICATE OUR REFERENCE NUMBER.

Lana Lon
Executive Secretary
University of Auckland Human Participants Ethics Committee

c.c. Head of Department / School, School of Population Health

Wendy Pirie
170 Tait Road, RD1,
Hastings

1. Should you need to make any changes to the project, write to the Committee giving full details including revised documentation.

2. The approval is for three years. Should you require an extension write to the Committee before the expiry date giving full details along with revised documentation. Extension can be granted for up to three years, after which time you must make a new application.

3. At the end of three years, or if the project is completed before the expiry, you are requested to advise the Committee of its completion.

4. Do not forget to fill in the 'approval wording' on the Participant Information Sheets and Consent Forms giving the dates of approval and the reference number before you send them out to your participants.

5. Please send a copy of this approval letter to the Manager - Funding Processes at Research Office if you have obtained any funding other than from UniServices. For UniServices contract, please send a copy of the approval letter to the Contract Manager at UniServices.

6. Please note that the Committee may from time to time conduct audits of approved projects to ensure that the research has been carried out according to the approval that was given.

20 May 2010 **Appendix 19**

University of Auckland
School of Population Health
Private Bag 92019
Auckland

To Whom It May Concern,

RE: Wendy Pirie – Consultation Process

I write to confirm that Wendy Pirie has met with me to discuss Maori protocol for children in the classroom and Maori protocol in general terms. We discussed the following:

- Food is not to be used as equipment.
- Ensure good pronunciation of Maori words and children's names.
- Be aware of activities that may involve touching the head.
- Be aware of activities that may involve walking or stepping over someone's legs.
- Ensure Maori children have the same opportunity to participate fully in the group, for example being the leader.
- Utilise Maori music.
- Utilise Maori equipment, for example use a poi instead of a tennis ball.
- When using commands, for example walking to the next activity integrate Maori words.
- Integrate Maori numbers when working in the classroom or with the Smart Start with PMP program.

Wendy has advised that an overview of the findings from the research will be made available to Maraekakaho School.

Yours sincerely

Karlene O'Dowda
Teacher

References

Absolum, M. (2006) *Clarity in the Classroom*. Hachette Livre NZ Ltd: Auckland.

Alison, J. (2007). *A teacher's perspective of using the Reintegration Readiness Scale to Develop a management plan to increase the social competence of a Year 1 student In a New Zealand Primary School*: A Case Study: University of Canterbury.

Australian Government, Department of Health and Aging. (2009). *Kids Matter Primary Initiative*. Commonwealth of Australia.

Baumgartner, T. & Hensley, L. (2006). *Conducting and Reading Research in Health and Human Performance,* Fourth Edition, McGraw-Hill: New York, NY.

Beck, Cheryl, T. & Polit, Denise, F. (2008). *Nursing Research, Generating and Assessing Evidence for Nursing Practice,* Eighth Edition. Lippincott Williams & Wilkins: Philadelphia.

Belcher, V. (2006). "*And my heart is thinking": perceptions of new entrant children and their Parents on transition to primary school numeracy*: Thesis: Christchurch College of Education.

Boswell, C. & Cannon, S. (2007). *Introduction to nursing research: Incorporating evidence-based practice*. Sudbury MA: Jones and Bartlett Publishers.

Bowling, A. (2002). Research *Methods in Health: Investigating Health and Health Services*, Second Edition, Open University Press: Philadelphia.

Brown, L. (1993). *The New Shorter Oxford English Dictionary, The New Authority on the English Language*. Fifth Edition. Oxford University Press: New York.

Bulluss, J. & Coles, P. (2007). *Smart Start with (P.M.P) A Perceptual Motor Program: Manual,* 4th Edition. Erica Press: Victoria Australia.

Bulluss, J. & Coles, P. (2007). *Smart Start with (P.M.P) A Perceptual Motor Program: Language Follow-up Activities*, 3rd Edition. Erica Press: Victoria Australia.

Bulluss, J. & Coles, P. (2008). *Smart Start with (P.M.P) A Perceptual Motor Program: Starter Activity Cards*, 4th Edition, Erica Press: Victoria Australia.

Bulluss, J. & Coles, P. (2008). *Smart Start with (P.M.P) A Perceptual Motor Program: Floor Session Plans for Starter Activity Cards, Extension Activity Cards*, 3rd Edition, Erica Press: Victoria Australia.

Clark, C. (2003). *Active Movement Foreword*. SPARC: Wellington

Cohen, D.H., Stern, V., Balaban, n. (1983). *Observing and recording the behaviour of young children.* New York Teachers College: Columbia University.

Cooke, Heidi. (2002). *Children's Motor Development*. Team Leader Child Development Services: Nelson Hospital, Nelson.

Connell, G. (2009). *Workshop: Moving To Learn*, Moving Smart ltd: Christchurch.

Connell, G. & Crowe, R. (2003). Moving *to To Learn*. The Caxton Press: Christchurch.

Council for Learning Disabilities. (1987). *Measurement and training of perceptual and perceptual- motor functions*: Journal of Learning Disabilities, 20, 350.

Dewar, S. & Telford, M. (2003). *A Study of the Use of School Entry Assessment (SEA) in Schools*. Research Division Ministry of Education: New Zealand

Ellemberg, D. & St-Louis-Deschenesa, M. (2010). *Psychology of Sport and Exercise, Volume 11, Issue 2, p. 122 – 126.*

Elliot, D. (2002). *Assessing instrument psychometrics*. In Z. Schneider, D. Elliott, C. Beanland, G. LoBiondo-Wood, & J. Haber (Eds.) *Nursing research: Methods, critical appraisal and utilization.* (2nd ed., p.331 – 348). NSW, Australia: Elsevier Mosby.

Goddard-Blythe. (2005). The *Well Balanced Child, Movement and Early Learning,* Hawthorne Press: United Kingdom

Greene, J. C. (2008). *Is Mixed Methods Social Inquiry a Dinstinctive Methodology*? Journal of Mixed Methods Research, 2, 1, 7 – 22.

Hannaford, C. (2005). *Smart Moves, Why Learning Is Not All in Your Head,* Great River Books: Utah.

Hagerman, E. & Ratey Dr J, J. (2008). SPARK, *How Exercise Will Improve The Performance of Your Brain*. Clays Ltd: Great Britain.

Hattie, J. (2003). *Formative and Summative Interpretations of Assessment Information*. School of Education, University of Auckland: Auckland

Hattie, J. (2009) *Visible Learning. A Synthesis of over 800 Meta-Analysis Relating to Achievement*. Routledge: New York

Holt, J. (1983). *How Children Learn*. Cox & Wyman Ltd: Great Britain.

Hyatt, K. (2007). *Brain Gym: Building stronger brains or wishful thinking*. Remedial and Special Education, 28, 117 – 124.

Hyatt, K.J. & Stephenson, J. & Carter, M. (2009). *A Review of Three Controversial Educational Practices: Perceptual Motor Programs, Sensory Integration, and Tinted Lenses.* Education and Treatment of Children. Vol. 32, No.2, Western Washington University: Bellingham and Macquarie University: Australia

Jackson, C. (2007). *Learning to Move: Moving to Learn. Birth through 5 NEWS *, Vol. 9. No. 2.* State Department of Education Early Childhood Special Education Program. University of Connecticut: Connecticut.

Jensen, E. (1998). *Teaching with the Brain in Mind, Revised 2nd Edition*. Association for Supervision and Curriculum (ASCD): United States Of America.

Kavale, K. A., & Mattson, P.D. (1983). '*One jumped off the balance beam': Meta-analysis of Perceptual-motor training*. Journal of Learning Disabilities, 16, 165 – 173.

Lavoie, R. (2007). *The Motivation Breakthrough, 6 Secrets to Turning on theTuned Out Child*. Touchstone: New York.

Katz, l. G. & McClellan, D. (1991). *The Teachers Role in the Social Development Of Young Children.* Eric Clearing House on Elementary and Early Childhood Education: Urbana, Illinois.

Katz, L.G, (2010). *Readiness: Children and Schools*. Eric Clearing House on Early Education and Parenting: Urbana, Illinois.

Neill, J. (2008). *Why Use Effect Sizes instead of Significance Testing in Program Evaluation?* Retrieved from www.wilderdom.com/research/effectsizes.html. 9 November 2010.

Mayer, D. (2010). *Essential Evidence-Based Medicine, Second Edition*. Cambridge University Press: New York.

Mazoni, E. & Southwood, J. & Temple, V. & Rhodes, R. & Virji-babul, N. & Purves, L. (2007). *Effects of indoor rock climbing on self efficacy and self perceptions of children with special needs: A pilot project*. ACHPER Healthy Life Styles Journal 53, Pg 10 – 16.

Mitchell, L., & Wylie, C., & Carr, M. (2002) *Outcomes of Early Childhood Education: Literature Review,* Ministry of Education Research Division: New Zealand

Ministry of Education. (2010). Positive Behaviour for Learning.

Ministry of Education. (2005). Guidelines for Host Principals, Learning Support Teachers and Management Committees. Retrieved from www.minedu.govt.nz/NZ Education/EducationPolicies/Schools/ReserchAndStatistics. January 2011.

Pica, R. (2003). *Your Active Child: How to Boost Physical, Emotional, And Cognitive Development through Age Appropriate Activity.* McGraw-Hilll: America

Punch, A. (2005). *Introduction to Social Research: Quantitative and Qualitative Approaches*, Second Edition, Sage Publications: London.

Rossmanith, A. (2002). *When Will the Children Play: Finding Time for Childhood*. Reed Books. U.S.A

Sasse, M. (2009). *Smart Start. How Exercise Can Transform Your Childs Life*. Exisle Publishing Ltd: Auckland.

Sawyer, M.G, & Arney, F.M, & Clark, J.J, & Graetz, B.W, & Kosky, R.J. (2001). *The Mental health of young people in Australia: Key findings from the Child And Adolescent Component of Mental Health and Well-Being*. Australia & New Zealand Journal of Psychiatry, 35 (6), 806 – 814.

Stephenson, J. & Carter, M. & Wheldall, K. (2007). *Still Jumping on the Balance Beam: continued use of perceptual motor programs in Australian schools*. Australian Journal of Education, Vol. 51., No. 1, 6 – 18.

SPARC. (2007). SPARC Announces Physical Activity Guidelines for Children and Young People. Retrieved from www.sparc.org.nz/

SPARC. (2007). *NZ Sport & Recreation Pathway*. Retrieved from www.sparc.org.nz/.

Tayler, C. (2006). *Starting Strong II: Early Childhood Education and Care*. OECD: Australia.

Thomas, J.R. (2001). *Children's Motor Behaviour: Implications for Teachers, Coaches, And Parents*. Iowa State University: Iowa

Virgilio, S. J. (2006). *Active Start for Health Kids, Activities, Exercises and Nutritional Tips*. Versa Press: United States of America.

Vo-Vu, J. & Caplan, J. (1999). *Centre for School and Community Development Critical Issue: Promoting Children's Readiness to Learn*. North Central Regional Educational Laboratory: America

Watson, B. (1993). *Facilitating Independent Learning Early in the First Year of School.* Thesis: The University of Auckland.

Webster-Stratton, C., & Lindsay, D.W. (1999). *Social competence and conduct Problems in young children*: Issues in assessment. Journal of Child Psychology and Psychiatry.

Wilkins, J. (2007). *The Perceptual Motor Development Program at The University of Toledo*. The Kinesiotherapy Rehabilitation and Research Centre: Toledo.