

Teaching handwriting – more than writing the alphabet.

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Abstract

Teaching handwriting – it is more than writing the alphabet.

Handwriting is one of the main reasons for referral to school based occupational therapists, therefore it is important for occupational therapists to understand how teachers teach handwriting. This is especially relevant in the culture of Aotearoa / New Zealand where providing ecological based services is expected and valued.

Method: Using a qualitative case study research methodology, an understanding of how Aotearoa / New Zealand teachers teach handwriting was obtained by interviewing six new entrant teachers.

Results: The core findings from this research demonstrate that these new entrant teachers had distinct expectations and activities included within their handwriting programs. The outcome of these expectations are refined into a three stage handwriting process; handwriting as an occupation, handwriting as a cyclic process and handwriting as a tool. These three stages offering a developmental perspective of handwriting which can be observed during the interaction between the teachers orchestration of the task of handwriting and the child's participation. Shared values and ways of doing between teachers and therapists were also found.

Implications: The core implications from this research include suggestions which have the potential to enhance ecologically based service delivery by connecting into the shared values, practices and expectations of teachers. This research demonstrates how connecting Aotearoa / New Zealand teachers' voices to international handwriting research can assist occupational therapists to inform their practice in an evidence based manner, specifically in the areas of pencil grasp, air time (processing time) and letter formation. The findings related to these three areas of the task of handwriting (pencil grasp, air time and letter formation) assist in explaining a developmental view of handwriting which can be observed in the classroom during any written task.

Further research directions highlight the promising use of literacy screening systems already set in place within Aotearoa / New Zealand school system, the realisation of this suggestion being the earlier identification of children with handwriting difficulties.

Table of Contents

Acknowledgements	ii
Abstract	ii
Preface.....	v
Chapter One: Introduction.....	1
Structure of Thesis	3
Chapter Two: Literature Review	4
What occupational therapists do in relation to handwriting and why is it their concern?	5
The traditional role of occupational therapy and handwriting difficulties	5
Traditional approaches used in addressing handwriting difficulties	6
Emerging interventions	9
Mis-match between bottom-up assessment tools and ecological practice.....	10
Acknowledging the importance of teachers’ subjective assessment of handwriting	11
Handwriting, perceptions of work and the teachers influence.....	12
Aotearoa / New Zealand education context.....	13
The ‘wholeness of letters’	14
Implications of cultural context on teaching practices and expectations.....	15
Explicit instruction and opportunity.....	16
Seeking the teachers voice	17
Summary	20
Chapter Three: Methodology	21
Introduction.....	21
Research Question.....	21
Research Methodology.....	22
Introduction to case study	22
Suitability of case study methodology	23
Case Study methodology and occupational therapy.....	24
Research Process.....	25
Recruitment Process.....	25
Other Inclusion / Exclusion Criteria of participants’	26
Participants.....	26
Process of data collection use in case study	27
Interview Process	28
Past interview process	29
Analysis of Data.....	30
Relationships between categories.....	32
Rigour.....	36
Triangulation	37
Ethical Considerations	37
Information solicited	37
Informed Consent.....	38
Anonymity.....	38
Issues of trust and power	38
Summary	39
Chapter Four: Results.....	40
Introduction.....	40
Defining handwriting	41
‘Wholeness of letters’	42
‘Risk taking and independence’	45
‘A child’s desire to grow up’	52
Manifested Value	54
The evolution of handwriting	56
Summary	60
Chapter Five - Discussion	61
Introduction	61
An occupational lens	62
The core finding	63
Occupational therapists’ view of handwriting.....	63
Handwriting as a occupation, Handwriting as a tool.....	65
Transformation point from occupation to tool	67
Reflecting the teachers’ voice against research.....	68

‘Stuck’ in the occupation of handwriting	68
Activity performance in the occupation stage	69
Co-construction	61
Perceptions of handwriting as work	62
Sense of self and a primary role for occupational therapy	63
Implications for Occupational Therapy.....	65
Shared Values.....	65
Forecasting future roles.....	65
Learning through doing.....	66
Handwriting intervention	72
Forecasting future roles – connection to intervention	74
Learning through doing- connection to intervention.....	74
Classroom observation	75
Handwriting in context.....	77
A mis-match between the class program and the child’s stage of handwriting development.	78
Early intervention strategy	79
Dependence on referrals.....	80
The first step - Identification of need	81
Aotearoa / New Zealand research on emergent literacy.....	82
Future research.....	83
Limitations	87
Conclusion	89
References	91
Appendices.....	109
Appendix A: Ethic’s Approval.....	109
Appendix B: Directory Of Aotearoa / New Zealand Schools	110
Appendix C: Information Sheet	111
Appendix D: Information Pack	112
Appendix E: Interview Protocol and priming sheet for teachers.....	122
Appendix F: Written Text Created from Interviews	124
Appendix G: Modified Interview Text.....	126
Appendix H: Coded Interview Text	128
Appendix I: Study Notes	131

Preface

It is important that I share how I arrived at writing a thesis on how teachers teach handwriting. The reader of this thesis will be at an advantage by understanding both my knowledge and interest in handwriting; as my personal experiences shape what I have written; the literature I have sourced; and how I have investigated this topic. I can not divorce my own voice from this research, however I can help the reader “locate my voice” (Atheide and Johnson, 1998, p. 293).

I am an occupational therapist who for over fifteen years worked in the field of paediatrics both in clinic and school-based settings. During this time I have been self employed offering occupational therapy services for children with handwriting difficulties. Generally those I encountered with handwriting difficulties related to the early skills of letter formation, sizing and position on the line; skills usually learnt in the first year of a child’s school career. It has been my experience as a private writing specialist within the Waikato region that the majority of referrals are for children approximately nine to ten years of age. By this age these referred children often have quite negative perceptions of their ability to write and about the task of handwriting itself. This experience of struggling to master handwriting appeared to have a rippling effect on a child’s belief in their self as a learner. This negative affect on a child’s self-belief was very concerning for me, especially as these children still had, at a minimum, another eight years of engaging in a task they found disempowering and frustrating.

I was interested to explore what teachers’ expectations of a child’s ability to acquire handwriting skills were, how they taught and if this possibly could explain why children continue to struggle for three to four years before being referred to specialist occupational therapy. In raising these questions I realised I needed to gain a better understanding of how handwriting is taught to year one students. This would enable a greater insight into what is expected of the child and how this impacts on the task of handwriting.

Chapter One: Introduction

Teaching handwriting - more than writing the alphabet.

Writing is a permanent record of a child's linguistic, motor and cognitive development (Sandler, Watson, Footo, Levine, Coleman & Hooper, 1992). This permanent record may also provide insight not only to a child's developing body structures (fine motor coordination) but also into the environmental and temporal influences relevant at the time a child's handwriting sample is taken. The permanent nature of the written word and our western classroom practices of displaying written work on classroom walls; completing group writing tasks; celebrating and sharing examples with peers and parents takes this personal record of ability and exposes it for all to see. This practice therefore shifts handwriting from a private body structure task to one that is public, involving and influencing the environment.

Handwriting is influenced by the environment not only in what is written about and how one is taught to write but also by the social messages embedded during the process of learning to write. Through this complex interplay of environment and body structure (WHO, 2001) the engagement of 'doing' handwriting comes together, influencing the development of a child's mind, body and soul. Their developing soul or sense of self may affect their belief in themselves as a learner.

Handwriting is a valued occupation of childhood (Amundson, 1992). Handwriting is important as it is considered a prerequisite for later academic achievement (Graham and Harris, 2000; Graham Berninger, Abott, Abott & Whitaker, 1997; Feder and Majnemer, 2007). A child's developing sense of self occurs through the opportunities of engagement in challenging occupations (Farnworth, 2000; Passmore, 2003) which society deems meaningful and important. Therefore success in learning to handwrite can in turn build a child's self-esteem, (Sassoon, 1990; Stewart, 1992) feelings of emotional well-being and social functioning (Cornhill and Case Smith, 1996).

Engagement in an occupation provides an opportunity for society and society's agents (Humphry, 2006) to communicate and pass down cultural values. The average school

student engages in the task of handwriting between 30% - 60% of their time during the school day (Feder, Majnemer & Synnes, 2000); therefore there are opportunities for social messages to be communicated and reinforced through the task of handwriting. These social messages are filtered, first from the wider society to teachers and then from the teachers to students. After family, schooling is the most persuasive socializing influence in the life of a child (Florey & Greene, 1997).

The main agent for communicating and setting the expectations surrounding the occupation of handwriting are teachers. Teachers directly influence the 'context' in which handwriting is carried out. With this understanding it is logical that therapists need to gain a better understanding of the expectations of teachers; as expectations have a direct relationship to the experiences afforded the child.

The purpose of this study is to explore how new entrant teachers teach handwriting to year one students. By exploring how teachers teach handwriting an insight into the physical and sociocultural context surrounding and influencing the task of handwriting can be achieved. This in turn will highlight the expectations and experiences facilitated by the teachers during the task of learning to handwrite. The outcome of this study will result in a better understanding of the social messages embedded within the task of learning to handwrite and therefore will assist the occupational therapist in considering the impact of handwriting on a child's developing sense of self. This insight along with specific suggestions synthesised from the results and the literature sourced could be used to guide therapists into more effective culturally specific practices when remediating handwriting dysfunction.

Structure of Thesis

The opening chapter; Chapter One, introduces the reader to the intent of this thesis. Chapter Two explores what defines a childhood occupation and reflects on the culture of occupational therapy and how as a profession it defines handwriting. Once the history behind this definition is expressed, the background influences of how society values handwriting and how the Aotearoa / New Zealand education system communicates its intentions to teachers around 'how and why' handwriting should be taught is considered. This consideration leads to the articulation of the guiding research question.

Chapter Three outlines the methodology of the qualitative approach used; why this approach was chosen and how raw data was analysed. The fourth chapter explores the teacher's voice which is filtered into three themes; the wholeness of letters; children's desire to grow up; and risk taking and independence. Shared values between occupational therapists and teachers are also articulated.

The final chapter views the insights gained from the interviews and analysis of the data through an occupational lens, the understanding gained from this perspective is used to inform occupational therapy practice. Future research and limitations of this research are also discussed.

Chapter Two: Literature Review

Handwriting is the outward manifestation of a child's opportunities, understanding and development (Sandler, et al, 1992).

This literature review takes the reader through several sections, each section builds towards the articulation of the research question created to guide this project. Initially the role of occupational therapy in handwriting dysfunction is discussed. Within this discussion a connection between a 'bottom-up' approach to intervention and multi-sensory, neuromuscular and biomechanical intervention approaches are highlighted. The profession's move toward 'top-down' ecological based interventions alongside the emerging approach, "therapeutic practice" is also reviewed.

The subsequent section focuses on this emerging approach to handwriting intervention and explores how this approach lends itself towards greater acknowledgement of the role of the environment. The implications of ecological practice in regards to the tools occupational therapists currently use highlights a mis-match between therapists' assessment tools and what is reported as important to teachers teaching in America and England.

Once this mis-match has been highlighted the connection between handwriting and a child's developing perceptions of work is considered along with the influence of the teachers' actions in creating the sociocultural environment in which the task of learning handwriting takes place. Handwriting therefore can be perceived as a culturally-defined activity. As a consequence of this view, an investigation into environmental influences such as policies and guidelines which help govern Aotearoa / New Zealand handwriting practices occurs.

The ending sections acknowledge that part of working ecologically requires an understanding of the subjective importance teachers place on the task of learning to handwrite. The chapter concludes by reviewing the scant literature which has asked teachers their views about the task of handwriting. The cumulative result of which is the articulation of the research question which ultimately guided this research.

What occupational therapists do in relation to handwriting and why is it their concern?

Occupational therapists are concerned about a person's ability to engage in the occupations they need and wish to do which enables them to fulfil their life roles (Nelson & Jepson-Thomas, 2003). Handwriting is a valued occupation of a school student as shown by the significant emphasis placed on learning how to write in the early years of schooling. The purpose of handwriting alters throughout a child's school career. Initially it is a task which needs to be learnt; then in later years it becomes one of the main tools to demonstrate learning (Case-Smith, 2002). The occupation of handwriting is therefore a very significant task which assists in defining the role of a student (Smith- Zuzovsky & Exner, 2004).

Research has shown that problematic handwriting is one of the leading reasons for referrals of children to occupational therapy services (Tait, 1998 p.9 cited in Terror-Perez & Hynes, 2005). Therefore difficulty engaging in this valued occupation becomes the domain of concern for occupational therapists responsible for meeting the needs of children with disabilities in mainstream schools.

The traditional role of occupational therapy and handwriting difficulties

Occupational therapy's definition of handwriting appears to be one of a performance-component emphasis. Amundson (1992) and Chu (1997) suggest that handwriting is an appropriate area of concern for occupational therapists to assist with due to their knowledge in fine motor, sensorimotor and neurological development. This connection to a specific area of their knowledge-base implies that handwriting is a visual motor integration task, or at least should be treated as such. This view is also echoed by Cornhill and Case-Smith (1996). However they quantify their stance on handwriting

being a visual-motor task by noting that visual motor skills are vital to copying text, rather than creating it.

Furthermore, Amundson (1992) defines visual motor integration as the ability to coordinate visual information with a motor response. Visual-motor integration is often also termed sensorimotor; vision being one of the sensors. A link can therefore be made between these suggestions and the actual practices of therapists. This is most clearly seen in the finding that 92% of American school-based therapists surveyed treated sensorimotor impairments in children with handwriting difficulties (Woodward and Swinth, 2002). Similarly Feder, Majnemer and Synnes (2000) found 90% of Canadian therapists surveyed also targeted sensorimotor components to remediate impairment in children with handwriting difficulties. These recent statistics demonstrate a professional bias towards considering handwriting difficulties as a performance-component impairment.

Traditional approaches used in addressing handwriting difficulties

The traditional handwriting approaches used by occupational therapists focused on areas such as pencil grip, seating posture, co-ordination of the muscles of the hand as well as visual perception. This way of approaching an occupational concern is often referred to as ‘bottom-up’ approach (Weinstock-Zlotnick & Hinojosa, 2004; Ideshi, 2003). This approach fitted neatly alongside the medical model emphasis on ‘fixing the problem’; the problem being within the child. The three main factors guiding reasoning behind this way of thinking were the biomechanical, multisensory and neuromuscular approaches (Admundson, 1992).

As noted above the multisensory or sensorimotor approach is still very popular as a way of addressing handwriting difficulties (Woodward and Swinth, 2002; Feder Majnemer and Synnes, 2000). In this approach to handwriting the therapist provides various sensory experiences such as writing in shaving cream or writing with chalk. The assumption being that if the task of handwriting is learnt thorough a variety of sensory mediums it will assist in the child’s learning (Admundson, 1992).

The biomechanical approach and the neuromuscular approach place a large emphasis on the sitting posture of the child. With a biomechanical approach the child's fit with the chair and table in which the child is seated is considered, while in the neuromuscular approach the postural strength of the child is emphasised. Although studies have demonstrated that seating posture can have a positive affect on the hand skills (Smith-Zuzovsky & Exner, 2004) and intelligence test results of a child when seated correctly (Sents & Marks, 1989) no studies have been found looking specifically at the improvement in handwriting in relation to seated posture.

The biomechanical approach also places a large emphasis on hand grasp. Pencil grasp during handwriting has therefore been the subject of much research (Koziatek & Powell, 2003; Burtin & Dancisak, 2000; Dennis & Swinth, 2001). The findings of these studies suggest that pencil grasp does not seem to affect a child's legibility of writing; however it may affect endurance in the task of handwriting. In the course of these studies the definition of effective pencil grasp has been widened to accept a larger range of what is accepted as an effective way to hold a pencil (Feder & Majnemer, 2007). This suggests that targeting the biomechanical and neuromuscular skills used during the task of handwriting as proposed in theory may not be the most effective intervention.

All three of these approaches, multisensory, biomechanical and neuromuscular are influenced by child development theories which map out developmental changes in a series of linear steps. This way of thinking reinforces using a 'bottom-up' approach to therapy intervention. The linear view of childhood development considered the child as a pre-determined bundle of unfolding of stages (Davis & Polatajko, 2004) divorced from the context which promotes and enables development to occur. This way of viewing human development placed remediation of the problem within the body structures of the child, often barely acknowledging the role of the environment and society in child development. In response to this way of thinking Humphry and Wakefield (2006) questioned occupational therapists strong reliance on other professions' explanations of child development. They suggested that a lack of occupational therapists own explanation of childhood development from an occupational perspective promoted this 'bottom-up' perspective.

Humphry's and Wakefield's (2006) observation supports the emerging occupation-based perspectives on childhood development. This emerging perspective provides

occupational therapists with a way to view child development through an ‘occupational lens’ (Davis & Polatajko, 2004). This ‘lens’ acknowledges that every activity is an interaction with the environment, especially the human environment. The interactionist perspective notes each person’s development is shaped by what they do and who they do it with and where they do it. An interactionist view advocates that individuals are involved in a reciprocal interactive relationship with their environment; and that this affects a person’s development across their lifespan. This viewpoint stresses the importance of considering the impact of the environment both human and non-human when considering the development of a person, child or adult. The human environmental influences have a huge role in socializing children and shaping the meanings they associate with specific tasks within their childhood. Therefore utilising an interactionist perspective of child development supports therapists to start their inquiry by looking at a child’s meaningful participation in life roles.

One frame of reference which is able to link this theory of child development to every day practice is the Motor Skills Acquisitional approach (Kaplan & Bedell, 1999). This frame of reference also acknowledges the interaction between the person, task and environment. In contrast to biomechanical, neuromuscular or multisensory approaches a Motor Skills Acquisitional approach (Kaplan & Bedell, 1999) directs intervention from a ‘top-down’ perspective (Weinstock-Zlotnick & Hinojosa, 2004; Ideshi, 2003). Ideshi (2003) defines ‘top down’ approach as looking at the life role or occupations which are meaningful to the person as the first point of inquiry. This is important as it is the professions unique belief that positive participation in meaningful activities which make up a person’s life roles facilitates a healthy sense of self and wellbeing. Therefore by utilising a top-down approach a therapist is more likely to facilitate this to occur.

For children, top-down inquiry starts with participation (Primeau & Ferguson, 1999). This is because children are dependent on the adults in their lives to afford them opportunities which are growth-enhancing and assist the child to develop skills which will enable them a positive future. Children often do not have control over the life roles and occupations provided to them, however they can and do have some control over what they participate in and the meaning they take from participating in that task. The theory base of interactionism and the motor skills acquisition frame of reference can be traced as guiding influences in the emerging approach “therapeutic practice”.

Emerging interventions

An emerging intervention of “therapeutic practice” (Denton, Cope & Moser, 2006) is in line with the theoretical constructs of interactionism, ecological practice and top-down intervention. ‘therapeutic practice’ like Motor Skills Acquisitional frame of reference (Kaplan & Bedell, 1999) draw on motor learning theory. The key component of motor learning theory is based around how people learn motor tasks best. Including the use of practice, knowledge of results and the type of feedback provided. Furthermore motor learning theory also considers the child, the environment and the task at hand. Although motor learning theory is not new it has not been a common theory used to guide handwriting intervention by occupational therapists. What is new in using ‘therapeutic practice’ is that this way of intervention acknowledges that handwriting is a multi-faceted task and as such requires cognition, language, perception and fine motor skills to develop simultaneously. Therefore as a treatment approach ‘therapeutic practice’ requires the child to remediate handwriting difficulties through explicit instruction, practice and generalising it into the creation of text (Denton, Cope & Moser, 2006).

Besides the theory based publication of Amundson (1992) acknowledging the possible use of motor learning principles during handwriting intervention no locatable occupational therapy studies using either an acquisitional frame of reference or interventions drawing on motor learning theory were undertaken in the 1990’s. The acceptance of using Motor Skills Acquisitional frame of reference and the motor learning theory behind it has recently been strengthened by the findings that ‘therapeutic practice’ was more effective than intervention that targeted the remediation of sensorimotor components (Denton, Cope and Moser, 2006). This finding along with the recent research from differing authors within occupational therapy specifically in the area of handwriting intervention who have utilised motor learning theory principles (Jongmans, Linthorst-Bakker, Westerberg, & Smits-Engelsman, 2003; Peterson & Nelson, 2003) are beginning to challenge therapists past practices. Hence many therapists are leaning towards an eclectic approach combining biomechanical, neuromuscular, multisensory and acquisitional approaches together (Case- Smith, 2002; Woodward & Swinth, 2002). The use of an eclectic approach is encouraged within Admundson (1992) writings.

This eclectic practice of moving towards an acquisitional frame of reference while still relating causes of handwriting deficits to visual-motor dysfunction has influenced how occupational therapists are now assessing for handwriting difficulties. Usually assessment is completed either against readability or a defined criteria breaking down the sub-components of handwriting end product such as sizing, spacing, letter formation and speed. As part of assessment the therapist rationalises these areas of difficulty to impairment in a body structure such as hand dexterity or wrist extension (Rosenblum, Weiss & Parush, 2003; Chu, 1997).

However a move towards using the teacher's knowledge of typical handwriting ability to identify handwriting difficulties is starting to emerge. This can be traced to two possible causes, one being that the Motor Skills Acquisitional frame of reference (Kaplan & Bedell, 1999) considers the connection between the person, the task and the environment within this framework; therefore greater consideration of the human and non-human environment is sanctioned. Secondly, this change in practice has possibly occurred due to new service-delivery models which have shifted where occupational therapists have been employed; being school-based rather than hospital-based (Hasselbusch, 2007). This shift to school-based services has enabled therapists to more easily observe children engaged in the tasks which make up their role as a student. Unfortunately many of the tools used by therapists reflect a bottom-up rather than a top-down perspective.

Mis-match between bottom-up assessment tools and ecological practice

One assessment tool traditionally used in the area of handwriting is the Minnesota Handwriting Test (Reisman, 1991). This assessment tool was designed to assist school-based therapists with the evaluation of handwriting difficulties. This test isolates handwriting from literacy and confines handwriting to a visual motor task. This test is done by jumbling up the words the children are instructed to copy. The aim is to remove a child's advantage of being a good reader or writing the text from memory. This assessment provides an example of trying to consider handwriting as an isolated part rather than acknowledging the connection to written language.

The gap between standardized assessments and teachers' expectations was highlighted by Sudsawad, Trombly, Henderson & Tickle-Degnen, (2001). These authors explored the ecological validity of the Evaluation Tool of Children's Handwriting (ETCH), (Amundson, 1995). The ETCH was developed by Amundson, an expert occupational therapist for the purpose of evaluating the readability and speed of handwriting. This test was developed to resemble classroom tasks of dictation, copying, text creation, writing numerals and letters from memory. Unfortunately the finding demonstrated that the ETCH (Amundson, 1995) was not relevant to teachers' handwriting concerns; therefore the authors questioned its ecological validity. A surprising finding was that teachers were influenced by the sub components of handwriting performance (letters sitting on the line, spacing, slant) and seemed to take this into consideration as well as general readability. It was reasoned that the influence of visual appeal was related to the fact that the teachers also took into consideration the children's attitudes to writing. Teachers' were also influenced by the overall knowledge of the children's writing development; which was in direct contrast to the snap-shot of information captured on the ETCH.

Acknowledging the importance of teachers' subjective assessment of handwriting

The valuing of the subjective appearance of writing is important to teachers (Sudsawad, Trombly, Henderson, Tickle- Degnen, 2001; Hammerschmidt and Sudsawad, 2004). In the study conducted by Hammerschmidt and Sudsawad (2004) a survey format was used to find out the factors that led American school teachers to refer students to occupational therapy. From this study two factors indicated most frequently as very important for handwriting to be considered acceptable were correct letter formation, directionality and proper spacing. Interestingly speed was not as valued as legibility. This study also noted that the most frequently used evaluation method by teachers' was comparing students to classroom peers. This finding that teachers subjectively assess student handwriting through visual analysis helps to explain why there has been a mismatch between teachers' ranking of children with handwriting difficulties and the ranking suggested when using the ETCH (Sudsawad, et al, 2001).

This research also highlights the possibility that teachers communicate or hand down their subjective comparison of handwriting which then shapes the developing perceptions of the students. The developing perceptions of students through the act of

handwriting have been related to childrens' developing concepts of work (King, 1982; Wing, 1995; Chapparo & Hooper, 2002).

Handwriting, perceptions of work and the teachers influence

Wing (1995) highlighted that children define the categories of work and play differently from adults. Moreover a child's definition changes as they progress from kindergarten (year one) to fifth grade (year six) (King, 1982; Wing, 1995) through to adolescence (Covington, 1992). King (1982) discovered that kindergarten children focus on the social context of their experience and therefore label all 'required' activities as work. Only voluntary activities were considered as play through the eyes of a kindergarten child. This perspective changed by the time they were in fifth grade. At this stage the definition of work and play were affected by the psychological context of their experience with pleasure being the major criteria for differentiating play from work. The category of work became narrower and only included activities which were difficult and tedious. The psychological connections and meanings devoted to work continue to be shaped as the child moved through their schooling experience. As noted by Covington (1992) for some adolescents praise stating a student is a 'hard worker' or 'working hard' elicits doubt in their own self efficacy because they can see some of their peers achieving without perceivable effort (Covington, 1992; Schunk, 1982).

These findings provide insight into how potent the meanings connected to the concept of work are to the developing child's self-efficacy and their developing 'sense of self'. King's (1982) and Covington's (1992) research was conducted in American in the 1980's and early 1990's. Because of this, caution needs to be applied when comparing their findings to Aotearoa / New Zealand children, both due to cultural differences and temporal changes in attitudes from then to now. However a more recent Australian study (Chapparo & Hooper, 2002) looking at the work perceptions of six-year-olds demonstrated similar findings. In addition to work being 'required' the children also associated solitary engagement as a criteria of work. In this study the children consistently classed writing as 'work'. The other criteria used by the children included sitting still, listening behaviours and thinking. It is worth noting that writing is the only criteria noted by the children which produced a tangible end-product (Chapparo & Hooper, 2002).

This tangible end-product provides a record in which comparison against others can occur. How handwriting work is compared and the associated meanings attributed to the successful or non successful engagement of learning to handwrite are directly shaped by the community and society in which the child is socialized. Learning to handwrite usually occurs in a school setting, with the teachers responsible for structuring classroom learning. It is the teacher who filters society's cultural values and communicates them through expectations embedded within the task of handwriting. The teacher therefore can have a direct influence to the perceptions of a child five and six years of age about what is work and whether handwriting is perceived as work in a positive or negative light.

The teacher is a vital part of the experience of learning to handwrite as they influence what is done, how it is done, as well as the social messages communicated during the task. This in turn may affect a child's developing sense of self. For this reason the perspectives of teachers is an important aspect of learning to handwrite that need to be considered. Teachers' perspectives are shaped by the education context in which they themselves were taught as well as the policies and educational trends popular during their time teaching.

Aotearoa / New Zealand education context

The educational context includes the Formation Guide (Teaching Handwriting: Supplement to the Syllabus, DOE, 1985) and the English Curriculum Guidelines (Ministry of Education, 1994). These documents amongst others reveal the beliefs and long-held traditions which form the essence of how literacy is taught in Aotearoa/New Zealand. The formation guide as it is often referred to, is a book published in 1985 which contains the style of writing to be taught in Aotearoa / New Zealand schools. This small book of 25 pages discusses and suggests how best to teach handwriting. It also includes possible solutions to common difficulties noted in handwriting instruction. In this publication the following aim is voiced; "The aim of teaching handwriting is to teach each child to write legibly, fluently, without strain and with sufficient speed for all practical purposes". It also adds "The central theme to this booklet is that..... a child's task is to learn efficient movements rather than to copy model shapes" (DOE, 1985, p.6). "It is not the shape of letters which is of first importance when teaching handwriting. The prime lesson to be learnt is the way in which the pencil should be

moved to form the letters” (Jarmen, 1977, cited in DOE, 1985). These extracts suggest that the process of learning letter formation at this time was more valued than the end product of legibility. Within the formation guide active teacher demonstration and modelling of handwriting is advocated.

Nine years later the development of the National Curriculum guidelines (Ministry of Education, 1994) occurred. These guidelines govern what should be taught at a particular stage of a child’s school career. Handwriting is briefly mentioned within the English curriculum document but limited clarity is provided about what and how handwriting should be taught. However it does recommend cursive style writing to be taught although at what stage within a child school career is not suggested.

This lack of clarity is justified when the objective of the guidelines is understood, which is to ‘provide a national direction while allowing for local discretion’ (MOE, 1994, p.7). Facilitating local discretion highlights a core belief of literacy learning in Aotearoa / New Zealand, this belief being there are multi-pathways to both to teaching and learning literacy (MOE, 2003). Diversity is expected and encouraged as long as equal learning achievements occur for all. One way suggested to manage this diversity of learning is by engaging children in the whole of the task (Clay, 1991 & 2001). To learn handwriting by using writing in creation of text; this ‘learning through doing’ enables teachers to grade one activity to meet the differing needs of many within a class, each child engaging at their level of ability and understanding.

The ‘wholeness of letters’

Handwriting is viewed by the Ministry of Education (2003) as an encoding task, holistic in that it requires the skills of doing, listening and seeing, to be taught simultaneously. The specific teaching of the three skills embedded within creating text mirrors Clay’s (1991) concept of a flexible networking system. Clay, an Aotearoa / New Zealand expert on literacy felt that some sort of system pulls all the components of literacy together. In particular she felt the act of ‘doing’, that is the act of ‘learning to read’ by reading and ‘learning to write’ by writing provided children with the opportunity to network vast amounts of knowledge together in a varied way. For a flexible networking system to be developed she advocated that teaching across all sensory areas of doing, listening and seeing is required.

This variety Clay advocated is particularly important for children if they are to be active literacy problem-solvers. For a young reader this means being able to problem-solve how to read new and novel words; while for writing this means being able to write or spell an unknown word. By providing this variety in presentation of the ‘wholeness of letters’ the teachers can facilitate the development of flexible pathways or ‘decision-taking activities’ within the brain of the child (Clay, 2001). Clay notes that the initial acquisition of learning to handwrite is a slow process. Each child has to create then organise the information they gain from the teachers teaching of the ‘wholeness of letters’ into their own developing network. This initial learning can be observed as the child puts pencil to paper and begins to form letters. How a child is taught to handwrite and the expectations surrounding the task reflect the cultural context the child is embedded within, therefore awareness of this context is required by the intervening therapist.

Implications of cultural context on teaching practices and expectations

Awareness of the similarities and differences between cultural contexts enables therapists to critique international research and apply the appropriate suggestions to our unique education system. However to critique and apply requires a firm understanding of Aotearoa / New Zealand in an educational context. Unfortunately there is only one handwriting study conducted by an occupational therapist situated within such a Aotearoa / New Zealand context (Pullinger, 1999). This study does not provide any information about the subjective experience of engaging in the task of handwriting, or about how the task of handwriting is taught. Pullinger’s research was quantitative comparing pencil grips and endurance when completing a copying task. On the other hand there are a growing number of research articles and Aotearoa / New Zealand-based publications written by educationalists which assist in defining the handwriting experience within the context of Aotearoa / New Zealand schools. One message articulated from these publications is that it is important that handwriting to be explicitly taught (MOE, 2003). Moreover this suggestion is echoed in an American study conducted by Graham, Harris and Fink (2000). In their study they explored teachers’ values around the use of explicit instruction in teaching handwriting. They found that teachers strongly agreed that explicit instruction was an important component of a writing program.

It needs to be noted that explicit instruction can mean differing things depending on context. For instance in England explicit instruction is more focused on looks or legibility (Medwell and Wray, 2007). A similar perception is also reflected in the American study conducted by Sudsawad, Trombly, Henderson and Tickle-Degnen (2001) with teachers valuing the visual appeal of handwriting over readability. Possibly in these two countries explicit instruction would entail just the form and shape of the letter. In contrast explicit instruction in Aotearoa / New Zealand is used to sum up the teaching of the whole of the letter, its sound, shape and its form (MOE, 2003).

Explicit instruction and opportunity

Explicit instruction is dependent on opportunity; the opportunity to be specifically taught how to handwrite. This obvious component is not always provided as demonstrated by Asher (2006). Asher, concerned about the number of handwriting referrals to occupational therapy services, completed a study looking at how handwriting was taught within one American school district. The findings of her study demonstrated that there was marked difference of opinion and expectations which affected the opportunities provided for children to learn the skill of handwriting.

The connection between opportunity and explicit instruction is noted by Karlsdoffir & Stefansson (2002). These authors agree with the current trend in handwriting research that handwriting dysfunction is often not traced back to difficulties in perception or motor skills but is a reflection of insufficient instruction. They suggest a mis-match between the time allocated to teach certain letters to certain children and the time required for these children to learn. The shared theme among these studies of Karlsdoffir & Stefansson (2002) and Asher (2006) is that hand writing instruction often does not occur or if it does occur, how it is taught may not provide enough opportunity for the child to master the skill of handwriting.

In many ways Aotearoa / New Zealand is fortunate in comparison to America, the context in which Asher (2006) and Karlsdoffir & Stefansson's (2002) research was based, teachers in Aotearoa / New Zealand have guidelines around the style of handwriting to be taught, albeit minimal guidelines. This seems to be enough to communicate consistency around the style of handwriting taught and when it should be taught. However these guidelines still leave a lot of room for individual teacher diversity and local discretion. Individual diversity can affect the opportunity and nature of instruction provided. Aotearoa / New Zealand's system of allowing for 'local discretion' may mean that the views communicated in Ministry of Education documents do not greatly influence the actual practices of the teachers when teaching new entrant children. Therefore understanding the culture of learning to handwrite in Aotearoa / New Zealand classrooms can not be completely gained from analyzing Ministry of Education documents.

With the knowledge that handwriting like all occupations is culturally defined, specific Aotearoa / New Zealand-based research exploring the task of handwriting from a qualitative standpoint is required. For this to be achieved information solicited directly from the teachers themselves is required.

Seeking the teachers voice

In the area of occupational therapy literature the teacher's voice appears to be very quiet. There are two specific articles looking at occupational therapy handwriting assessment and intervention, one in London (Terrer-Perez & Hynes, 2005) and one in Canada (Feder, Majnemer & Synnes, 2000). Both appear to ignore the teacher's perspective and the setting in which handwriting occurred. This is despite Terrer-Perez & Hynes (2005) citing the National Curriculum (2003) that education, health and social services should work in a multi-disciplinary way. By acknowledging these guidelines these authors indicate that in this environment, professionals working together is sanctioned. The authors expand on the intent of this guideline by encouraging therapists to be aware of the teaching style prevalent in the child's school and acknowledge the affect this can have on intervention and future recommendations. This recommendation reflects what should occur, not what was actually found within their study.

In the article by Feder, Majnemer & Synnes (2000) the short-coming of not seeking out the teacher's voice, or a greater understanding of the environment in which handwriting takes place is also alluded to. In particular Feder et.al highlight the mis-match between assessment tools currently used and the professions move to be more occupational performance based.

In contrast an article written by two occupational therapists Hammerschmidt and Sudsawad (2004) does actively seek out the teacher's voice, using a questionnaire to identify why teachers referred cases to occupational therapists; the criteria they used in deciding if a child had handwriting difficulties; and the outcomes they looked for after a child had completed occupational therapy services. Interestingly from this study 57.7% of teachers preferred a 'pull out' method of service delivery (intervention conducted outside the classroom environment). Only 28.8% indicated consulting together on techniques the teacher could implement as the preferred choice, with a small 13% opting for the therapist to work with the child in the class room. These findings go against the supposed service delivery trend of ecological-based practice as discussed in Feder, Majnemer & Synnes (2000). Possibly Hammerschmidt and Sudsawad (2004) study highlights that therapists' ways of working ecologically require further development; due to the limitations of this study's questionnaire methodology, further insight into these findings is not available.

An attempt at capturing the teacher's voice occurred through the tool of questionnaire in a study conducted by educationalists Graham, Harris, Mac Arthur and Fink-Chorzempa (2003). One interesting finding in this study was that 42% of teachers surveyed expressed a limited openness to modifying their handwriting program for children who were experiencing difficulty. Unfortunately the structure of a questionnaire makes it hard to reflect the possible reasons for this finding. Both of these studies are situated in America, therefore the reasoning behind the teacher's views may not be obvious or relevant to Aotearoa/New Zealand's education system.

The only way to get relevant information about how handwriting is taught in Aotearoa / New Zealand is to ask teachers currently teaching within this context, specifically teachers who teach new-entrant children how to handwrite. Insight into sociocultural influences could be highlighted by exploring how and why teachers teach handwriting the way they do. This should include looking at the physical resources teachers' use as

well as how they structure opportunity, instruction and generalization of the task of learning to handwrite. This identified need has guided the development of the following research question.

Summary

A number of elements have come together to form the research question; exploring how new entrant teachers teach handwriting to year one students, acknowledging the physical and sociocultural environments which shape their practice.

Firstly handwriting is important, especially the initial stages of learning. New entrant teachers are the adults responsible for teaching this valued task to children when they first attend school. For this reason teachers of new entrant children are targeted within this research. Gaining an understanding of how and why teachers taught handwriting in their particular way will provide insight into both the physical props used as well as the sociocultural environment as facilitated by the teacher. As noted by Nelson & Jepson-Thomas (2003) the physical world can not be separated from the sociocultural world. Therefore by exploring how the teachers teach handwriting, an insight into the sociocultural messages embedded within the task of handwriting should become apparent. By specifically focusing on the sociocultural influences a connection to top-down intervention approaches used by occupational therapists will be enabled. This is an area not traditionally well explored in the area of handwriting research.

A sociocultural perspective is congruent with an interactionist perspective of childhood development and ecological approach to service delivery. Therefore the unique focus of this research question will assist in aligning developmental and service delivery theory with emerging trends of practice. By utilising a sociocultural perspective when exploring handwriting the experience of engaging in handwriting will be captured. This in turn will move therapists' practice towards the heart of the profession's domain of concern; this being a person's developing sense of self through engagement in meaningful occupations.

Chapter Three: Methodology

Introduction

In this chapter the research question, research design and justification for the use of case study methodology chosen are presented. In addition the data collection and phases of analyses are explained.

Research Question

As outlined in the literature review many studies have been conducted in the area of handwriting. Few of these studies have captured the teachers' voices and even fewer have investigated the sociocultural and physical environment that influences the task of teaching handwriting. Investigating the teacher's voice is important as the teacher is the main adult responsible in teaching this task. Also they control (or at least strongly influence) the environment and the expectations which surround the task of handwriting. As a consequence of seeking the teachers' voices more awareness of the task, experiences and expectations of handwriting will be achieved. This awareness will strengthen occupational therapists knowledge base, which in turn could contribute to therapists' providing more effective occupational therapy interventions. Currently there is a lack of literature seeking out the teacher's voice; this lack of literature both internationally and nationally prompted the development of the following research question;

'To explore how new entrant teachers teach handwriting to year one students, acknowledging the physical and sociocultural environments which shape their practice'.

The following aims were developed to support the investigation of this research question. The aims of this study:

- To describe teacher's reflections about how they teach handwriting and what has influenced the 'why' they do it in their particular way;
- To gain an understanding of the expectations and experiences facilitated by teachers that impact on the task of handwriting;
- To apply this learning to assist occupational therapy practice in the area of handwriting.

Research Methodology

The research methodology chosen for this study needed to capture both the teachers' voice and the context of the voice. The most appropriate research design has been identified as a qualitative case study using a semi structured interview format (Yin, 1994; Stake, 1995).

Introduction to case study

Yin (1994) and Stake (1995) define case studies in differing ways. Yin describes three types of case study research; descriptive, explorative and explanatory. Each of these types of case studies have three consistent factors, these being (1) they explore the 'how' and 'why' questions, (2) they have an intense focus on a single phenomenon and (3) they have a number of variables which are greater than those specifically being researched (Yin, 1994). In case study research it is understood that there will always be variables and that only a select number of these variables will be acknowledged within the data (Yin). Qualitative case study does not seek to tightly control variables but attempts to explain the context so that the reader can critique the research against their own experience (Yin). This is an important aspect of qualitative research as it enables an individual and their perceptions to be investigated without the researcher having to quantify how these perceptions developed

Stake (1995) also highlights the use of qualitative case studies as a means of gaining understanding into people's experiences. Similarities between Yin's (1994) generic definition and Stake's classification can be drawn, The main one being that both authors define the differing types of case studies by how they describe the gathered data.

Stake identifies three differences in his sub definitions. Firstly he only uses the two criteria of intrinsic and instrumental to differentiate case studies. In intrinsic the focus is on improving the understanding of a particular case while instrumental case studies are described by Stake (1995) as "research on a case to gain understanding of something else" (p.171). In this research, the case study focused on how teachers' teach handwriting. The exploration of this process in turn facilitated an understanding of the sociocultural and physical influences. The 'something' else in this research was the intention to gain insight into how therapists can improve the intervention services for children with handwriting difficulties. Therefore in alignment with Stake, this research is described as an instrumental case study.

Case studies can be single (Yin, 1994; Stake, 1995) or multiple (Yin) or collective (Stake). Collective case studies involve more than one participant. Collective case studies add reliability to the findings and may offer deeper understandings than single case designs. In collective case studies each case is first analysed individually and then an analysis is made across the cases. Collective studies can be viewed as replicas therefore strengthening the validity and reliability of findings (Yin, 1994; Stake, 1995). Therefore, keeping with Stake's terminology, this case study is also described as collective. The collective case study has been chosen over a single case study design as the ability to draw themes across cases from the data collected is one way of determining a shared cultural view (Nelson & Jepsen-Thomas, 2003).

Suitability of case study methodology

Collective case studies can be used to study a person, persons, an organisation, group, service, event or activity (Yin, 1994; Stake, 1995; Salminen, Harra & Lautamo, 2006). In this investigation the research focused on a small group of six new entrant teachers who discussed how they carry out the activity of teaching handwriting. Case study and qualitative research can be reconciled as a qualitative focus allowing for rich data to be gathered enabling insight into both the phenomenon and the context (Yin, 1994; Stake,

1995). The task of handwriting and the role of the teacher in defining how this task is carried out are interlinked and therefore can not be separated. Case study research is suited to situations in which boundaries between the studied phenomenon and the context are not clearly evident. This difficulty in drawing boundaries can be accommodated within the methodology of case study research as noted by Stake (1995). Accommodation occurs by clearly stating the context, people involved and event in which the research focuses on. The rationale for choosing these particular conditions also needs to be provided (Stake, 1995, Burns, 1994).

As Salminen, Harra and Lautamo (2006, p.3) noted: 'Case study research is used to explore real life experiences and situations, when the researcher is interested in both the phenomenon and the context in which it occurs'. In addition, qualitative research considers perceptions and ideas, enabling the teachers' voice to be heard. An individual's perceptions and ideas are identified by asking the 'how' and 'why' questions. Stake (1995), Yin (1994) and Fisher & Ziviani (2004) noted that case studies are an appropriate methodology to use when answering such 'how and why' questions. The research question guiding this inquiry sought to understand how teachers teach handwriting and why they do it in their particular way.

Case Study methodology and occupational therapy

The work of Salminen, Harra and Lautamo (2006) suggested that case study research is a valuable research tool as it is in line with the principles of occupational therapy. These authors draw a parallel between occupational therapists and researchers who use case study methodology to holistically investigate complex systems situated in real life context. In this case study, the ability to consider the case holistically required the researcher to seek out and hear teachers' voices as well as value each participant's subjectivity and experiences.

Salminen, Harra and Lautamo (2006) also illustrated that case study research can advance occupational therapy practice. Case study can be used to inform both an occupational science perspective (Larson, 2000) and a therapy intervention perspective (Fry & O'Brien, 2002). Case study is an appropriate way of studying variables comprising the occupational therapy process (Colborn, 1996). However, case study research is still a relatively unused methodology in the field of occupational therapy,

despite researchers (Parham, 1998; Yerxa, 1991) advocating it as an appropriate research method for inquiry into occupation and occupational therapy intervention (Colborn, 1996).

Two studies which utilise case study methodology with interview as the data collection strategy are Prigg (2002) and Wiseman, Davis and Polatajko (2005). In particular, these studies highlighted the value of semi structured interviews in answering the 'why' component of inquiry. Interestingly, Wiseman, et al., (2005) emphasised how the commonly used strategy of participant observation was not an adequate method to gain understanding of the 'why' behind an action. They noted that often the reasons behind an action are generally not immediately obvious. These authors therefore suggest that interview is a more valid means for gaining insight into the 'why' something occurs.

The 'how' aspect of case study research is equally important. As articulate adults teachers are able to describe how they complete the task of teaching handwriting, therefore participant observation would not be required due to the communication skills of the participants. Furthermore this inquiry seeks out to understand the process of teaching new entrant children across a span of a year. The boundary of the research questions therefore lends itself towards interview rather than participant observation.

Research Process

In accordance with case study design, a systematic approach was applied to each stage of the research process. Firstly a detailed research protocol and ethics application provided the opportunity for the research design to be formally articulated. Ethics approval from Otago Polytechnic Ethics Committee was then obtained (Appendix A). Once these two stages were completed participant selection started.

Recruitment Process

Initially eighteen potential schools within driving distance were selected using the Directory of Aotearoa / New Zealand website. This site was used to access contact addresses and to obtain information about the decile rankings of schools (Appendix B). A opportunity sampling method was used (Burns, 1994). This letter was addressed to the Principal of the school and Board of Trustees. An information sheet detailing the

nature of the study, the aims and objectives and the time commitment accompanied this letter (Appendix C). All of the schools contacted fitted within the inclusion criteria of being a government owned primary school, using English as their main language for teaching, as well as being recorded as having a decile rating between 5 and 8.

A decile rating of between 5 and 8 was deliberately chosen to assist in defining boundaries around the socio-economic description of the school as well as the literacy achievement standards. McNaughton, Phillips and MacDonald (2003) demonstrated that although decile ratings did not make a difference in pupils' ability to acquire letter and phonological knowledge, markedly lower progress was noted for word recognition, writing words and text reading in children from lower decile schools. Since difference in literacy achievements have been correlated with the decile rating of the school, an attempt to limit this influence has been made by accessing schools only in the mid range. This should ensure neither a very high or very low socio-economic makeup are represented within this study. It is hoped that by doing this other factors such as language enrichment groups, lesser or greater exposure to printed materials will not affect how the teacher's teach handwriting.

Other Inclusion / Exclusion Criteria of participants'

A further inclusion criterion was duration of teaching experience of new entrance pupils within Aotearoa / New Zealand to be over two years. It was important that the teachers were embedded in the culture of teaching literacy in Aotearoa / New Zealand and for this reason new immigrant teachers were excluded. In addition, any teacher or schools in which the researcher had worked within a professional or personal capacity in the past 12 months were excluded. This exclusion criterion was developed to assist in maintaining the safety of the participants and to ensure that participation was truly of voluntary grounds, not a case of obligation (Creswell, 1998). It was also possible that if researcher had previous relationships with a participant it may impact on the findings.

Participants

Participants were initially recruited through a letter sent to the Principal and the Board of Trustees. With Principal and Board of Trustee approval, the information pack

(Appendix D) was passed on by the Principal to the ‘new entrant’ teacher or teachers who were interested in participating. Within this information pack an information sheet, an expression of interest form, a consent form and a priming questionnaire outlining the process of the interview were provided. With the initial invitation letter a stamped envelope and instructions for filling out the consent form were provided for the participating teachers.

Once the researcher received the signed consent form a follow up phone call was conducted. This was to clarify any questions and to arrange a time for an interview. Initially eight teachers expressed interest in assisting with the interviews, however due to scheduling difficulties and the wealth of information gained from the first six interviewees the last two volunteers were omitted, but thanked for their willingness to participate.

Table One: Participant Information

Participant Information		
Participant	School Size N= number of students	School setting
Participant A	350-500	Urban
Participant B	100-150	Rural
Participant C	500-650	Urban
Participant D	500-650	Urban
Participant E	350-500	Urban
Participant F	350-500	Urban

The schools were all within the same regional area within the North Island of Aotearoa/New Zealand.

Process of data collection use in case study

Interview was the main tool used to gather insight in to how teachers taught handwriting. At the start of the interview all the teachers gave permission for the interview to be recorded using a small dictaphone recorder. An interview protocol

which included semi structured open ended questions as well as a prompt sheet to assist the teachers reflections (Appendix E) was provided to create “a framework for exploring experiences” (Maycutt & Morehouse, 1998 p.89) and perceptions. Semi structured interviews provided a flexible structure which assisted in gathering similar data from each teacher’s story while allowing for flexibility for each teacher to describe teaching handwriting in their own way. Enabling flexibility in how the teachers described how they taught handwriting provided further insight into each teachers individual style and emphasis of their program.

The undertaking of a pilot interview is recommended in case study methodology literature (Stake, 1995). A pilot interview prior to conducting a course of interviews ensures that the proposed questions and interview structure flows appropriately and gathers the information which answers research question. Pilot interviews also provide the researcher an opportunity to practice the art of interviewing and gain feedback (Stake, 1995). A pilot interview was arranged however the interviewee was unable to follow through due to scheduling conflicts. Therefore as a substitution, a new entrant teacher who was not part of the study examined the interview questions and tools (Appendix E) and provided feedback. After examination by this impartial participant, no changes to these tools or questions were required.

Interview Process

Individual interviews were conducted rather than group interviews or focus groups, despite some of the participants teaching in the same school. Individual interviews were conducted as it was important for teachers to express their way of ‘doing’ without having to justify why their way was the same as or different from a colleague (Creswell, 1998). All of the teachers interviewed had sole control of their classroom, therefore they were familiar with teaching handwriting independently. The decision to use individual interviews was reinforced after the first two interviews demonstrated how varied the teaching of handwriting could be. The interviews were conducted in the teachers own classroom after the school day. Each participant was only interviewed once. Interviews times varied between one hour to one and a half hours in duration.

Each interview followed the interview format. Most of the clarification and extended questioning occurred at the end of the process, after the participant had told their story

of how they taught handwriting. This minimised the impact of the interviewer leading the participants on or adding to their stories. The data gained from the teachers included summaries of their interview, digital photos, samples of their resources and a list of their most currently influential resources. The digital photos of teaching resources (worksheets, pencils, tables, teaching props) and lists of the resources the teachers used influenced the creation of data as they provided a visual representation of the teacher's words. However, it soon became apparent that the resources teachers used were often changed from one year to the next and that the teachers were open to change. Therefore it appeared that the actual resource was not as important as the reasoning behind why a resource was chosen. For this reason the researcher felt it was more transparent to use the teacher's actual words than to analyse the digital pictures or list of resources.

Past interview process

The interviews were translated into written word within a few days of being conducted. The data was organised under the questions used within the interview. In addition to these questions the following headings; 'guiding philosophy', 'lesson breakdown', 'resources' and 'motivation' were used. This system of headings emerged from the data collected (Creswell, 1998). As recommended by Creswell, the data was read and re-read during the process of creating written text from the tape recorded interviews. The transcription process was completed by the researcher, this process facilitated an in-depth knowledge of each teacher's story (Creswell, 1998; Burns, 1994).

The interview summaries are a collection of direct quotes, lesson descriptions as well as general information and teacher's musing around the topic of handwriting. The lesson break downs were summarised by the researcher, while the data which captured experiences, expectations and reflections were transcribed as direct quotes (Appendix I).

Stake (1995) suggests that due to the nature of conversational language direct transcriptions can have a negative affect on the participant as they see in print many of the mannerisms of speaking which demonstrate how broken or repetitive our communication can be. Stakes suggests that seeing the mannerism of speaking written down can affect a persons confidence in what they have said and how they have said it. Taking this point into consideration a summary format rather than a word-for-word transcription process was utilised. This is in contrast to the data being completely

transcribed, this is what traditionally occurs (Creswell, 1998). Although complete transcription may eroded the participants confidence when member checking the transcript, it can ensure that important data is not screen out too early on in the data analysis process. Aware of this possibility the original tapes were kept and reviewed again once the themes were developed to double check that no relevant data was missing.

Once the interviews were transformed into written text they were sent to the participants for member checking. Member checking is advocated as both a verification step and an analysis step; in that it provides the researcher an opportunity to get feedback from the participants ensuring that the researcher correctly captured their voice (Creswell, 1998). All of the data produced from the interviews were member checked by the participants. Changes were made, mostly additional information or change of terminology from informal language to formal e.g. kids to children. An example of modifications to a transcript is included within the Appendix G. Once member checking was completed and change requests by the participants included, the formation of a data base of information began. This data base included the member check transcripts (Appendix G) as well as coded transcripts (Appendix H) and working study notes (Appendix F). Through this process the formalisation of categories emerged.

Analysis of Data

A number of categories emerged as reoccurring trends and topics during the typing process appeared (Creswell, 1998). Creswell describes categories as single phenomena that can be named and in which multiple elements must occur. These categories developed as the researcher looked carefully at the words and metaphors used by the participants (Burns, 1994). The sub-categories were developed and became a tool to sort and classify subsequent information as each interview was completed. Quotes from each interview were colour coded to match a developing category. Initially ten sub-categories were developed.

Table Two: Initial ten sub-categories

Initial sub categories
Personal style
Time
Motivation and meaning
Risk taking and independence
Learning through doing
Wholeness of letters
Connections with community
Diversity of practice
Strategies
Ages and stages

These ten categories were then reduced through the process of developing taxonomies (Creswell, 1998).

Taxonomic analysis involves two processes; firstly organising similar or related categories into larger categories and then identifying differences between sets of subcategories and larger categories (Creswell, 1998). During this process the researcher uncovered threads which linked categories together. Using taxonomic analysis resulted in the organisation of three categories, risk taking and independence, wholeness of letters, and desire to grow up, as well as a beginning understanding about their possible relationships (Creswell).

A greater understanding of these relationships occurred by using literature and theoretical concepts to derive an understanding and explanation of the categories based on what had already emerged from the data (Creswell, 1998). This process of gaining an understanding of the relationships between these categories was facilitated by considering the data three times against three different frameworks and influences.

Relationships between categories

By looking at the data through differing frameworks (or lens) a rich and varied understanding of the phenomena studied can be achieved, this process is also advocated as a valued part of the triangulation process (Yin, 1994; Stake, 1995). Considering the data from differing perspectives (Yin 1994) is important for “increasing confidence in the interpretation of data and whether the data would have the same meaning across differing circumstances” (Salminen & Lautamo, 2006, p.6). The frameworks selected were chosen due to their alignment with the interactionist perspective of child development as well as their ability to view handwriting from an occupational stand point. This was important as the research question was formulated to seek out data about the environment human and non human surrounding and influencing the task of teaching handwriting. Therefore frameworks which acknowledged the role of environment in learning would assist in highlighting the sociocultural aspect of the task.

Initially the three emerging categories were tested against the writings of Clay (1991, 1998 & 2001). Clay was chosen as her writings have had a marked influence on the practices of Aotearoa / New Zealand teachers and she is considered a leader in the field of literacy. For this reason it is likely that Clay’s work has influenced the teachers actual daily practice in how they teach handwriting. Reflecting the emerging categories against Clay enabled the researcher to identify some of the possible links between the categories, (e.g. wholeness of letters, diversity of practice, strategies, learning through doing) as well as recognise connections between the theories of literacy written by Clay and the actual practices of classroom teachers (e.g. teaching writing and handwriting together).

After this process the emerging categories were then tested through the lens of Humphry’s ‘Proposed Model of Occupation as a Change Agent’ (2002) as well as her more recent model ‘Processes of Transforming Occupation’ which focus more strongly on the sociocultural influences affecting meaning attached to tasks (2006). Humphry’s (2002) model was useful as it was proposed to assist therapists to understand the age related changes seen in children from an occupational point of view rather than the traditional performance component perspective. Her second model (2006) is similar to her earlier model, however it challenges the notion of a child’s motivation as the

starting point of the process, therefore placing greater emphasis on the impact of society on defining occupation. Humphry's (2006) model enabled the consideration of handwriting from a sociocultural perspective.

The final step in testing the emerging categories was to reflect the teachers quotes onto Larson's 'processes of orchestration' (2000). Larson's 'processes of orchestration' (2000) assisted in analysing how teachers manage the many facets of teaching handwriting. Larson (2000) highlights the potential of using 'orchestration' to examine the relationship between occupation and life span development. A vital part of life span development is socialisation into the person's surrounding culture and society. Socialisation occurs through the process of passing down social messages (Larson 2000; Humphry, 2006). Larson's 'process of orchestration' was originally drawn from parental care-giving experiences through the process of qualitative case study. Although Larson looked at the role of mothers in relation to the orchestration process, similarities between a mother's responsibility to socialise their children into society though occupational engagement and a teacher's role in assisting with the socialisation can be drawn. Both teachers and parents enable a child's experiences by the opportunities they provide, which in turn affect the social messages communicated to them. Of the eight processes that emerged from Larson's study, they all appeared to be as relevant to teaching routines as they were to the care giving routines carried out by mothers, therefore making it a relevant tool to use in the analysis process. The eight elements of Larson's 'process of orchestration' include planning, organisation, balancing, anticipating, interpreting, forecasting, perspective shifting and meaning making. The definitions of these process are slightly modified to fit the context of this research. The modified and original versions are presented in the table four.

Table Three: Larson's Process of Orchestration

Larson's Process of Orchestration	
Eight elements of Larson's Process	Definitions: Larson original (2000) definitions are cited alongside the modified definitions.
Planning:.	Method for achieving the teaching of handwriting, conceptualizing strategies. (Planning: Method of achieving maternal aims, conceptualizing strategies for design of occupations (p. 274). Under the topic of planning the concept of strategies was considered
Balancing :	Taking into account the interests, preferences, and desires of class members and school procedures when organizing occupations; harmonizing, prioritizing and negotiating with class and school members to design occupational form , to synchronize between members and to sequence occupational rounds. (Balancing : Taking into account the interests, preferences, and desires of family members when organizing occupations; harmonizing, prioritizing and negotiating with family members to design occupational form , to synchronize between members and to sequence occupational rounds (p. 274).
Organizing:	Configuring of occupations into a functional routine (p. 274).
Interpreting:	Conceptualization of child and class desires, needs, preferences, and wants to design and recompose occupations. (Interpreting: Conceptualization of child's desires, needs, preferences, and wants to design and recompose occupations (p. 274).
Anticipating:	Advanced foresight to address demands of temporally proximate and distant occupations and to counter disruption/ create positive contingencies in occupations (p. 274).

Forecasting:	<p>Predication of possible futures and embedding of occupations into current daily rounds to move towards those future possibilities (p. 274).</p> <p>In this process the theme of ‘evolution of handwriting is revisited , this alongside the teachers views on generalization, opportunity and practice.</p>
Perspective shifting;	<p>Overarching process revising of perceptions of previous events and their meaning related to ongoing occupational engagement and choice (p. 274). This process captures teachers reflections on how there practice has changed over their careers and what possibly has facilitated those changes.</p>
Meaning making:	<p>Overarching process finding alternative optimistic, and meaningful explanations for life circumstances and occupational patterns.</p> <p>Meaning making: Overarching process finding alternative spiritual, optimistic, and meaningful explanations for life circumstances and occupational patterns (p. 274).</p>

Larson’s process enabled both the human and non-human aspects of the task of handwriting to be considered. How each process assisted in organising the data gathered from the teacher’s interviews is demonstrated in Appendix G.

Utilising Larson’s process promoted three outcomes, firstly it supported the systematical analysis of the three categories and their relationships with each other. In doing this it facilitated the researcher to consider the impact each category had on the orchestration process of teaching handwriting. Secondly, Larson’s orchestration process promoted the awareness that the actual orchestration of handwriting was individualised and conducted to match the teaching styles and personalities of each teacher interviewed. Although the three emerging categories were considered against Larson eight processes, in the end ‘orchestration’ was used to capture both the individual as well as the whole process of orchestration.

Cross coding or referencing the same excerpt of information in multiple ways is advocated as important, as it adds an additional layer of complexity to the coding process (Stake, 1995; Creswell, 1998). It is also noted that a researcher can use different analytical approaches at each stage of the data analysis process and that these

actions can be conceptualised as a spiral with each loop of the spiral building on another until a firm understanding of the phenomenon is derived (Creswell, 1998). Through the process of analysing the data through Larson, (2000), Clay (1991, 1998, & 2001) and Humphry (2002 & 2006) the categories were distilled down into three themes. Themes are developed based on abstractions (Creswell, 1998). The theme titles reflect actual words used (Burns, 1994; Creswell, 1998) by some of the teachers, 'risk taking and independence' and 'wholeness of letters' and 'desire to grow up'. It needs to be noted that not all the teachers used these exact words, however every interview had data that fitted within these three themes.

Rigour

Case study research has been criticised on a number of counts, such as the subjectivity of the method and biased data collection, analysis and conclusions (Yin 1994; Creswell, 1998) and for a lack of representation (Creswell, 1998) and hence having a weak basis for generalisation (Stake, 1995; Yin, 1994). These identified problems are address through the process of rigour.

Reliability at the data collection stage was ensured by using a case study protocol for obtaining the data and by developing a case study database. A case study protocol is essential if you are using a multiple case design (Yin, 1994). The case study protocol included question guide, a visual prompt to assist the teachers and an interview guide for the researcher.

It has also been suggested that case study researchers apply various techniques to distinguish the subjectivity of the informants from their own subjectivity; for example by comparing alternative explanations. This process was assisted through the use of supervision, member checking and Larson (2000), Clay (1991, 1998 & 2001) and Humphry's (2002 & 2006) literature (Creswell, 1998; Yin, 1994). During the analysis process the developing categories were reflected against these authors literature. Detailed documentation of both the interview data and the analysis process was completed; an example of this process is demonstrated in Appendix F. Alternative views of teachers are reported within the results chapter to ensure that all evidence is fairly reported. The teachers views are presented in italics while the researcher voice in

regular print. These steps have been included as a means of reducing the lack of rigor and bias (Stake, 1995).

Triangulation

Triangulation can be achieved by using multiple methods and data sources in data collection and/or using multiple researchers in data collection and analysis and/or multiple theories. It has been advocated that triangulation makes it possible to achieve a rich and varied understanding of the phenomena studied (Creswell, 1998; Yin, 1994).

Differing perspectives are facilitated through the tools of Clay (1991), Larson's 'Orchestration Processes' (2000) and Humphry's 'Proposed Model of Occupational Change Agent' (2002) and 'Process of Transforming Occupations' (2006). These tools were used in the data analysis stage and broadly cited within the discussion stage assisting in achieving triangulation.

Ethical Considerations

Information solicited

Although this study explored the sociocultural influences which surround the context of teaching handwriting, it did not explore or collect any data related to ethnicity, age, or any other personal variables. The sociocultural influences explored were limited to policies, institutions and systems external to, but of influence to the teacher participant, as these were more likely to reflect the overall cultural of Aotearoa / New Zealand education system (Nelson, Jepsen-Thomas, 2003). Although it is acknowledged that each individual teacher's life experiences would impact on how they taught handwriting, analysing these variables was outside the intent of this thesis, therefore it was inappropriate to collect this data. On the other hand, requiring more than 2 years of experience in teaching was requested as it may have a bearing on the responses provided by the teacher participants.

Informed Consent

Participants were teachers of new entrant classrooms in primary schools. Based on informed consent (Stake, 1995) every individual had the free choice to participate or not to participate at any time during the data collection stage of the study. They also had the right to withdraw from the study or refuse to answer particular questions at any time during data collection without being disadvantaged in anyway. Participants were informed that once data analysis began they were unable to withdraw their data or statements. No participants requested to withdraw or withdrew at any stage of the process.

Anonymity

Participants real names are not used. The risk of being identified because of the small and geographically close network of participants was also reduced by offering to conduct the interview at a time when other teachers were not on the school premises.

Issues of trust and power

Trust during the data collection and member checking process was achieved in four ways (Stake, 1995). Firstly, by providing a written explanation of the research process within the initial information pack which clearly stated what was required from the participants. Secondly, through the signing of the consent form and finally by ensuring an equal power relationship existed (Stake, 1995). The participants were encouraged to carry out the interviews in their own classroom at a time that was self-chosen. Before the Dictaphone began recording the teacher was encouraged to ask any questions about the interview and member checking process (Stake, 1995). During the member checking stage, the participants were encouraged to modify any text within the written summary which they did not consider reflected how they taught handwriting or what influenced the method they used.

All of the data produced from the interviews was member checked by the participants.

Summary

This chapter has described and justified the method used to obtain and analyse the data. The following chapter begins to answer the research question; “How new entrant teachers teach handwriting to year one students”.

Chapter Four: Results

Introduction

This chapter captures some of the teachers' reflections about how they teach handwriting, and what has influenced why they do it in their particular way. Each teacher's way of teaching handwriting has been considered against sourced literature as part of the analysis process. This analysis process is noted throughout this chapter as connections between the teachers way of teaching handwriting and possible influences from literature are reflected against each other. This process was chosen as a way of highlighting possible sociocultural influences acting on the teachers, thus providing another layer of interpretation. This is a valid method of data collection when using case study methodology (Stake, 1995).

It needs to be acknowledged that each teacher orchestrated (Larson, 2000) the task of handwriting in their own unique way. This diversity of practice is sanctioned by the supporting curriculum documents (MOE, 1994). This chapter pulls together the common from the diverse, highlighting the teachers' 'shared ways' of teaching. Firstly how teachers define the task of handwriting is explored, and through this process the teachers' shared ways of teaching handwriting emerge. These 'shared ways' are communicated through the collective voice of the group, as expressed by the recurrent themes; 'the wholeness of letters, 'a child's desire to grow up', and the lastly the value of 'risk taking and independence'.

The three themes form the bulk of this chapter leading to how teachers communicate handwriting as a valued task. Towards the end of this chapter name writing as a task is used to illustrate the relationship between the three themes and handwriting.

Defining handwriting

Before the task of teaching handwriting is presented it is important to clarify what teachers' mean by the term 'handwriting', as handwriting can be seen as a process (the learning of the task) or as the end product (the tangible writing sample) (Rosenblum, Weiss & Parush, 2003), or as a language task or a visual-motor integration task. In the quotes below the words of "learning", "form" and "holding" allude to the teacher's definitions being process-oriented.

Ella, "The learning intention for handwriting, so therefore my definition of handwriting, is to form all the letters correctly while being properly placed on the line".

Anna, "My definition of handwriting would include children learning the alphabet names, sound and letters while holding and using the pencil correctly".

Clair, "My definition of handwriting would include children learning the wholeness of a letter, the alphabet name, its sound and shape while holding the pencil correctly".

Anna and Clair's definitions both include the sound of the letters. Clay (2001) describes this as giving letters a voice. This inclusion of the letter's 'voice' may demonstrate that for these two teachers handwriting is more than a visual presentation skill (The MOE, 1994), but is considered "language by hand" (Berninger & Graham, 1998) thus crossing over the strand of visual presentation and merging with the curriculum strand focused on written language.

A key aspect of this learning process is summed up in Clair's phrase 'wholeness of letters'. The phrase 'wholeness of letters' is used to capture the teacher's intention of teaching the whole of the task, the behavioural outcome of this task being handwriting. The term handwriting is often used to describe writing from a purely visual-motor perspective as demonstrated by Ella's definition, while the concept of the 'wholeness of letters' is inclusive, pulling together a range of information in regard to a specific letter. This more inclusive view is communicated by Beth,

“ I have a very holistic approach to teaching handwriting. It is part of a much bigger picture that does not just look at the physical aspect of holding a pencil and learning how to record specific shapes”.

Although Ella defined handwriting as a visual motor task, her method of teaching handwriting along with the other teachers actually reflected a more complex integration of knowledge around the concepts of print. One way this was reflected was by the teachers actively encouraging a child to make connections and utilize any knowledge they had about print. Often this first connection was around the child’s name.

Anna, “First I focus on them using the letters they are familiar with, and remember from their name”

The knowledge a child draws on can be as intimate as the shapes sound, or as removed as a child’s recognition of it being a circle with a stick. Teachers use the knowledge that children are cognitively wired to make connections to information already mastered (Clark, 1996; Clay, 1991).

How handwriting was taught was dependent on the teacher's style, the actual activity and resources used, as well as the teachers’ perspective on the child’s abilities and prior knowledge they brought to the task. However there were similarities between all the teachers programs, and these have been channelled into three themes ‘the wholeness of letters’, ‘risk taking and independence’ and ‘the desire to grow up’.

‘Wholeness of letters’

‘Wholeness of letters’ captures the meaning of teaching the sound, shape, name of the letter together and encouraging the children to draw on this knowledge to generalize it into other literacy tasks of learning to read and learning to write. Teachers structure teaching the ‘wholeness of letters’ to support the development of flexible networks. By teaching all the elements or many of the elements within the same activity the teachers provided opportunity for the children to see the links between the differing concepts of print. Varied presentation embedded in the context of real tasks is one element advocated to assist with the laying down of flexible pathways (Clark, 1996; Clay, 2001).

Anna's handwriting program provided this exact environment of varied presentation, as she taught handwriting through story writing.

Anna, "Embedded within story writing they learn how to write the letters they need. The children have to form a story which is usually about one sentence in length. They tell me their story and then together we identify the sounds we hear and letters which formed those sounds. I then assist the child to write the letter teaching that letters specific formation".

Anna's program could be described as learning through doing. It is advocated by the MOE (2003) that learning through doing caters for a variety of children's needs as they are able to attend to what makes sense to them, thus offering an environment to extend children with well developed concepts of print as well as engage children with more primitive concepts. This ability to grade the learning experience to meet the individual needs of the children was a strong component of Anna's program. Anna felt that formal lessons did not provide this flexibility as reflected in the following quote, "*Formal lessons weren't worthwhile, as they are either too hard for some children or not challenging for others*".

Anna described formal lessons as learning a letter by writing or copying it many times on the line of a page. Although Beth's and Clair's programs could be described as formal lessons and therefore were vastly different from Anna's, they, like the other participants, also held the shared value of children needing to learn the 'wholeness of letters' while learning handwriting.

Beth, " I want to get the children to visually recognize the shape, imitate the sounds it makes, attach that sound to the beginning of specific concrete nouns, hear it in the middle of words and be able to draw on it, and then physically draw the sound / letter they hear".

Clair, "Handwriting and reading is so intertwined, you can't really separate the two things, and I do not think that you should. The children need to think about the letter as a whole it's sound, it's shape, it's form and it's name".

The benefit and reciprocal relationship of learning writing and reading together is advocated by many specialists within the field of literacy learning (Clay, 1985; MOE, 1992 & 2001). The consequence of learning handwriting by writing, for example story writing, is that it provides an opportunity for the child to access and use all they know about letters in a variety of ways, thus encouraging rich systems of networks to be formed.

This view was communicated by Debbie, *“I think variety is good for the children, it exposes the children to a number of ways of doing things. For some children the phonic learning will make the most sense, for the other children letter groups will be what works for them”*.

As Debbie illustrated, providing variety in how learning is presented offers more possibilities for a child to draw on when trying to solve a literacy problem (Clay, 2001). Moreover, this variety enables the child to draw on what suits their learning style the best, therefore supporting and allowing diversity of each child’s individual path and time- frame of learning to be accepted as valid by the teacher. Through enabling diversity the child’s ability to pull on their own knowledge strengths is more likely to occur. Writing whole words assists in forming and accessing networks related to the meaning of words, while creating words in the act of spelling would add extra layers both in the area of meaning but also other skills such as sound shape relationships. These richer networks possibly would not be formed if a child just practiced handwriting as a visual-motor task which involved rote formation of one letter over and over again (Clay, 2001).

Anna and Ella taught handwriting within story writing. Their approach fits closely with two suggestions taken from Clay’s work, firstly, that reading and writing have reciprocal benefits when taught together in the first few years of schooling (Robinson, 1973 cited in Clay, 2001), and secondly that writing and reading continuous text facilitates ‘self extending’ learning to occur, which in turn assists with accessing and developing rich networks of information about print. Links can be drawn between these two concepts, and the scheduling of handwriting sessions within the school day. One teacher followed handwriting with the task of reading, while the remaining five teachers embedded handwriting or followed handwriting with the task of story writing.

Clair's reasoning behind structuring the task of handwriting and story writing together relates to the issue of networking and generalizing skills.

“Story writing flows on from handwriting, to me this is logical as they have just practiced writing this letter so now they get to incorporate it into their story writing. This is part of the reason why I do these two activities leading on from each other, seeing the connection is important. Otherwise you get children who do beautiful handwriting in their handwriting book, but poor writing in their story books, there is no transfer. By following on from each other this seems to be less of a problem”.

The experience of handwriting, an intentional act orchestrated by the teachers, was consistently endowed with the message that handwriting meant the learning of the wholeness of the letters. Wholeness of letters captures the meaning of teaching the sound, shape, name of the letter and being able to draw on this knowledge to generalize it into other literacy tasks of learning to read and learning to write. Within handwriting the output of learning about the ‘wholeness of letters’ was demonstrated by the physical task of letters being written. However the second stream of laying down flexible networks was also enriched through teacher’s choice to teach the ‘wholeness of letters’. Moreover, by scheduling story writing within or directly after handwriting this new learning was reinforced. This choice of scheduling assisted in communicating that handwriting could be a tool to achieve a more distant occupation of being a writer, thus creating an opportunity for the child to experience handwriting as an occupation, and handwriting as a tool almost simultaneously.

The next theme ‘risk taking and independence’ considers how teachers encourage children to use the knowledge learnt through the wholeness of letters to extend their skills as a learner.

‘Risk taking and independence’

‘Risk taking and independence’ pulls together two separate notions. The first notion ‘risk taking’ means to leap beyond what we know, beyond what we are comfortable with. Risk taking behaviour is implemented both with or without teacher support. When it is employed without teacher support, the second notion of ‘independence’ is achieved. The value of risk taking is reflected in the following quotes;

Anna, “ Invented spelling and any attempt to recognize and write the sounds of the letters they hear within their story is praised. There is also a bank of high use words that they can get and copy into their stories, however I encourage children to pull from their memories rather than rely on copying words”.

Beth, “Encourage moving onto what the other children are writing, - almost before ready - saying ‘you can do it’ even if they can’t. Provide hand over hand modeling if required”.

Risk taking requires a safe environment. A safe learning environment can be facilitated in a number of ways; one way is in the teacher’s attitudes to mistakes. Beth recited one script she commonly uses with her pupils. *“I love mistakes especially when you can see what’s wrong, you are going to get better than me”.* This quote not only reflects one way Beth communicates the value of risk taking within her classroom; it also alludes to the importance of the child self-monitoring and self-correcting. Comparison can be made between these combined skills of self-monitoring and self correcting and Clay’s theory of ‘self extending learners’ (1991).

Beth modelled this self-monitoring process by getting the children to demonstrate their choice first and then comparing it to her choice. In doing this she actively shaped the children’s self-monitoring to match her concept of ‘best one’. *“They circle which is their best one, in reporting back I tick my favorite one”.*

In Clair’s program this skill was just requested. *“I ask the children to show me which one is their best”.*

The strategies used by the teachers enabled the children to flex their risk taking muscles in a number of ways. The strategies of copying, tracing, using directional cues, and then forming the letters from memory was a common sequence utilised by many of the teachers.

Clair, “ I have handwritten models prewritten in their books for them to copy over with a few spaces for them to try and complete the letter independently”.

Clair, “ The youngest children tell me their story I then write their story for them to copy over, leaving some empty blanks for them to independently source and write some of the small high usage words like I or to”.

The second aspect of this theme was independence. Independence was achieved when the children could follow the class routines around the task of handwriting without direct teacher support. The opportunity and expectation to work independently is reflected in the following quotes.

Anna, “In their first week of school during story writing time I do not go near the children at all, I want them to realize that they are writers and that they do not need a teacher by them to write. Any marks, drawings or attempts to write symbols is praised”.

For some teachers’ independence was expected more of the older children within the class.

Beth, “The older children are expected to work independently”.

Unlike the other teachers, Faith was less concerned on the importance of risk taking and independence. A stronger value on tidiness and caution was expressed during her interview.

Faith, “I do not usually get the children to write in books for the first couple of terms as I find it is too difficult for them to write on the line. Once they are doing well with the worksheet they progress onto writing in their books. I sit with the children who have just gone onto lines for about a week, I use this time to make sure they are using the lines properly. We talk about the placement, the size, how it fits on the lines. I don’t expect them to just be able to do it, I teach them how to do it. At points of transition within the different aspects of my program I provide one-on-one support”.

Faith’s quote brings up a number of things to consider. Firstly, Faith was the only one to mention about children being fearful to write.

“Most of my kids have done ok, three boys have struggled out of my class of 23. I have found that if they can’t form their letters they will not write their stories, it affects their

confidence. They look around at their peers, and they see everyone else's writing which is tidy, and that their writing is not the same. One boy in particular could tell me lovely stories and spell his sight words for me, but get him to write, no. I talked to mum and things are starting to improve along with his belief in himself".

"I have had a another boy who couldn't write and it affected his confidence, his mum worked with him and his confidence just shot up. He wouldn't write more than a few words, he compared himself to his peers, he would write the shortest sentence possible. When he got more comfortable with his writing, he experimented more with his story writing. I don't think people realize how important handwriting can be for children. Some kids don't care. For others, their confidence is connected to their handwriting. If their handwriting is a mess, and they know it is a mess, they aren't willing to try, it is safer for them to not try than be teased or shown up by their peers".

Whether the connection between these childrens' confidence and the task of handwriting was directly connected to Faith's manifested value of tidiness and less value placed on risk taking and independence is an interesting point to consider. Possibly the other teachers had also noticed a connection between these two elements and either consciously or unconsciously used this knowledge when planning their handwriting program. One participant, Debbie, demonstrated a conscious choice to see past untidy handwriting.

Debbie, "I'd rather the child write their ideas down, and see past the untidy handwriting, than the child not be willing to write at all. I believe it (handwriting) will come in time".

It is possible that each teacher structures a delicate mix of installing risk taking and independence along with covertly encouraging the value of tidiness. This delicate mix created by the teacher would also be affected by each individual child's own personality. This was summed up by Ella, *" I think a bit of it is about personality. Some children are tidy writers, some children aren't".*

Another aspect to consider is that once a social message has been communicated, the retracting of it may be very hard. Faith appears to provide a high level of oversight and high expectations. *"I send them back to practice a few more. I am quite strict. I walk around the whole time and monitor how they are doing it".*

However her values shift when she moves from handwriting practice to story writing, especially in the early stages.

Faith, “I do not concentrate on letter formation during story writing. If down the track they are having trouble with letter formation, or placement on the line I will pull them up on it, however at this early stage I do not want them to worry about it, I want them concentrating on the letter sounds and what they want to write about. Once the children are writing a sentence or two quite well within story writing I then encourage them to start tidying up their writing”.

While Faith appears to communicate mixed messages the point to be taken from this example is that possibly for some children keeping up with the changing expectations of core classroom values can go undetected. It is also possible that even though this changing value is detected the child’s desire to demonstrate writing more like their older or more able classmates affects whether they accept this flexible value around the concept of tidiness.

Peer pressure may also have an influence on the process of learning to handwrite, as noted by Clair, *“Their peers also provide feedback, especially if they are forming a letter incorrectly, just as long as they are not too bossy with each other I allow this to occur”.*

While Beth also used peer influence as a teaching strategy. *“ The next part of my program chooses three children to draw the day’s letter on the board, once this is done the others vote on which is the best one”.*

The level of peer pressure orchestrated and sanctioned by the teacher is another influence to consider. In both of these examples the teacher allowed or facilitated peers to be part of the feedback process. Beth promoted feedback to occur at the end of the task, while in Clair’s example the feedback could have been provided at any point within the task of writing.

When the teacher gives feedback is also key. For example in Faith’s quote cited above the wording *“pull them up”* suggests that teachers consider when is the best time to deliver feedback. Does feedback during the task inhibit risk taking more than feedback

provided at the end of the task? Faith may have used her structured one-on-one time at periods of transition to teach the skills of self-monitoring, or to provide concrete feedback, although this exact information was not gained from the interview process. However for Beth and Clair it was clear that they facilitated guided self monitoring as a feedback strategy. Ella also used feedback at the end of the writing task, the difference being that she was the one who decided what to focus on. *“.....often at the end of their stories I will pull out the letters they are having trouble with and get them to practice a few more on the bottom of the page”*

Ella actively choose not to use self-monitoring with her children. *“You can have self-assessment with the little children if they clearly understand what the learning intention is, however if they don’t have a clear understanding, their choice of what is their best letter can be completely different to my choice. This causes a problem, because then I’d have to discredit what they have chosen. I do not use self assessment very often now. Later on in the year if the success criteria are clearly set and the children understand it then they can score themselves against it”*.

Self-monitoring as described by the teachers is dependent on a type of task awareness. This task awareness enables the child to compare their work to the forever changing social messages communicated by the teacher and reinforced by their peers. Guided self- monitoring is one strategy of ‘risk taking’ that facilitates the outcome of independence. Therefore a continuum of self-monitoring skills also needs to be communicated and taught alongside the actual physical task of learning to handwrite. Teacher provided feedback is at one end of the continuum, guided self-monitoring in the middle, with independent self-monitoring at the other end of the continuum. Ella believed that independent self-monitoring was achieved when a child was able to define their own next learning goal. She taught this through the use of written success criteria which the children could use to compare their work against. Ella describes this process. *“You begin to have success criteria such as; Use my line correctly so my letters look the right size. The children can use this for their self assessment and some children as they begin to understand the process will identify their own feed forward”*.

Ella described feed forward as the child’s ability to identify what they wanted to improve on next time they did their handwriting. Therefore it would appear that a child’s ability to express their own learning goals is a sign to the teacher that they are

able to independently self-monitor. Self-monitoring, that is, knowing what is wrong and how to fix it, is seen by teachers as an important aspect which leads the child to become an independent writer.

Within this theme of 'risk taking and independence' two separate notions were identified. The first notion risk taking means to encourage the children to leap beyond what they are comfortable with, to take on a challenge. By taking this leap and learning through doing the child gains task awareness. For task awareness to occur a careful balance needs to be created by the teacher to facilitate risk taking behaviour. Firstly the activity needs to be graded just right, beyond the child's current skills but not completely out of their range. Next a safe learning atmosphere where children are secure in the knowledge that trying or risking is praised or valued more than other aspects of the task at hand. The final element is having the opportunity to risk, learn from that risk taking adventure, reflect on it and try again.

The ability of the child to reflect on the work they have produced is closely related to learning the skills required to self monitor. An important aspect of self-monitoring within the theme of risk taking is about the child's resilience to accept that their first attempt may not be perfect, and that they may have to persevere. Through the development of self monitoring skills the child becomes more and more independent in their ability to follow the routines of the handwriting session and engage in handwriting without the one on one support of the teacher. When this occurs the second notion of independence in handwriting was achieved.

The themes 'wholeness of letters' and 'risk taking and independence' are both teacher-driven. The third theme a 'child's desire to grow up' was regularly alluded to by the teachers as a source of motivation. In many ways this theme is driven from the children with the teachers acting in response to what they perceived was motivating to the children within their class. For this reason less is known about this theme as it was extrapolated from the teachers description of what they observed.

‘A child’s desire to grow up’

‘A child’s desire to grow up’ reflects what teachers perceive as internally motivating to children, especially children in their first year of schooling. Teachers used the child’s ‘desire to grow up’ to motivate in a number of ways such as running multiple handwriting programs within their class handwriting instruction. In doing this they exposed the younger children to the expectations and activities of the older children, and revisited the expectations for the younger class members. This group instruction offered an opportunity to extend those who were ready, and provided consolidation of learning for those still forming their literacy networks.

Beth, “All the children hear and experience all the instructions and activities for each group, thus providing revision for the older ones and exposure for the younger children. I feel this exposure is a great motivator as the younger children want to be able to do what the older children are doing. I use peer praise and the acknowledgement of moving towards being a big kid as a motivator quite a lot in my class”.

Clair also harnessed this motivation, using concrete props of different size books and lines to highlight a child’s progression of skills.

“ The promotion from one book to the next is a big deal to the kids. They often bring their parents in to show off their new book. The desire to be a big kid and to start the next book or work task is a big motivator for most kids at this stage”.

The lure of ‘growing up’ was also used to change incorrect habits, in particular writing in capitals. Rather than discount this skill, Ella re-framed it :*”If they have writing, it is usually capitals, I find I do not have to teach them how to form them, just where to use them”.* Clair was also very careful not to discount a child’s prior learning. *“You need to acknowledge their learning by saying, That’s how you did it when you were a Kindy kid, but now you’re a big school kid you need to do it this way”.*

According to the teachers, by tapping into ‘a child’s desire to grow up’ teachers harnessed what is internally motivating to the children in their class. The ‘desire to grow up’ is a potent motivator to children in their first year of schooling. In Aotearoa / New Zealand turning five and heading off to school is considered one of the many important milestones of growing up. Due to the structure of our schools, children arrive at school as the youngest and they strive to move up the ladder of ‘bigness’. This movement up the ladder occurs in many ways, by the passing of time, the addition of younger members to the class, the aging of years, and also through the acquisition of skills. In particular it is how the teachers draw attention to, and capitalize on this internal desire within their handwriting program that is considered when the phase ‘desire to grow up’ is used.

Each of the themes, ‘the wholeness of letters’, ‘risk taking and independence’ and a child’s ‘desire to grow up’ impact on the orchestration of both the human and non-human elements fostered within the task of learning to handwrite. The term orchestration is used to communicate the delicate mix of differing elements each teacher pulls together to form their own way of teaching handwriting. Within this orchestration the human aspect comprises the skills, knowledge and experience of the teacher. The teacher creates the non-tangible environment such as the classroom climate, the type of support and instruction utilised as well as the timing and nature of feedback. Another aspect of the classroom human environment to consider is the peer support or peer pressure sanctioned by the teachers during handwriting sessions. The non-human aspect captures the tools and physical props used within the task of handwriting, which include items such as the paper, worksheets, pencils, chairs and tables the children sit at.

These differing elements communicate a host of social messages. The main social message communicated by the teachers is that handwriting is valued. The following section considers how the value of handwriting is communicated to children in their first year of schooling.

Manifested Value

Handwriting as an occupation has manifested value which is communicated by the teachers to the children in three main ways; by the structure of how it is presented, the time in which it is scheduled within the school day, and the amount of opportunity to engage in the task. In addition to these strategies the teacher orchestrates links with home to share each child's progress.

The choice of five out of six teachers was to schedule handwriting in the first teaching block of the day, although their specific reasoning for doing this was not expressed. “*From 9 am to 10 am the above lesson takes place, rolling over from 10 to 10.30 into story writing*”(Beth). “*My handwriting session starts on the mat in the morning.....(Clair).*”

The time of day in which handwriting sessions took place was one tool the teachers used to create the climate of learning another was that of formality. Debbie, “*This is a very structured time, very teacher directed*”. Faith, “*Handwriting is a silent activity. It is very formal, they start as soon as they get their book*”.

Alongside the explicit teaching of handwriting extra opportunity to engage in handwriting tasks was promoted through the provision of free time activities. Debbie, “*In free time the children often do copying work, I have resources which they can draw on using a white board marker, these are all opportunity for practice too*”.

The teachers also shared their value of the importance of handwriting with home in a number of ways. Clair encouraged the children to celebrate with their parents when they progressed from one book to the next. Ella created a link between home and school through the vehicle of homework, reinforcing the importance of handwriting as a skill to be learnt. Ella, “*The children also get extra practice two nights a week when their homework includes a sound letter worksheet from a commercial book*”.

Other teachers also made a link with home specifically around the task of handwriting. Through this link a partnership between home and school is formed. Other ways included;

Debbie, “When the book is finished it is sent home for the parents to see, and hopefully use as a guide when encouraging their child to write at home. I encourage and thank parents every newsletter for assisting their child to learn to handwrite, whether they do or not I do not know”.

Anna was more direct in her link with parents.

“The child’s ability is recorded on a sheet in the back of their book, this is usually done in conference with the child, to help highlight how well they are progressing and what would be the next thing to try and learn. The information from this sheet is then used at a family conference which occurs after the child has been at school six weeks. At these conferences I will highlight how to teach a letter if a child is having formation difficulties, or about pencil grip if required...”.

Communication to home possibly assists in facilitating a shared understanding between the teachers’ expectations with that of the students primary caregivers. *Beth, “The parents have to know where you are coming from, otherwise they will teach something different or not buy into what the child is talking about”.*

The differing ways the value of handwriting was communicated to the children is an important aspect to consider for two reasons. Firstly one of the defining criteria of children’s occupations relates to the value others place on it (Humphry, 2001). Therefore demonstrating how teachers transmit that handwriting is a valued task is important, especially if handwriting is to be considered a childhood occupation. Secondly in our society, engaging in socially valued occupations offer an opportunity for social messages embedded within that occupation to be communicated from society’s agents (adults) to children. For teachers some of these social messages guide the child to being able to produce handwriting within the social boundaries expected by society. These boundaries include what is defined as legible, and whether the child’s writing conforms within this expectation. The degree of legibility as well as the speed in which the child writes reflects the transition from a skill which is being learnt, to a skill which is mastered. Once the child is able to handwrite within these boundaries, the manifested value placed by teachers on the task of handwriting changes. These changing boundaries can be considered as a series of destinations. Progression from one boundary to the next is marked in tangible steps as the child is scaffolded through

this handwriting journey. This is reflected in the teachers' practice, with each teacher having multi steps within their handwriting programs.

Debbie, "There is two levels, the first level is practicing the letter shape and introducing the words that go with making the letter. The second level has lines with half lines, the children practice one line of letters and then writing the letter within words".

Often the teachers ran two to three programs at a time to accommodate the differing needs and abilities of their children, thus creating a clear sense of development along the handwriting continuum. *Beth, "A child doing well may move through the groups very quickly, while another child may stay in each group a bit longer to assist in reinforcing the skills they need to master".*

Clair, " The work is graded to the differing needs and abilities of the children".

This grading of behaviour, the social messages and expectations that go along with it are reflected in the forever-changing learning intention or boundaries communicated to the child. What is expected, valued and praised when a child first starts to form letters is quickly modified to shape the development of handwriting to the next stage along the journey. Over the course of this journey the value associated with handwriting changes. The most noticeable change in value occurs at the transition from learning to write, to using handwriting to communicate, to be a writer.

The evolution of handwriting

The phrase 'evolution of handwriting' was created to capture the transient nature of changing expectations which occur between the occupations of learning to write and being a writer. The teachers expectations of an average child's starting point along the handwriting journey influences the opportunities provided by the teacher. Therefore the first point to consider is where does the evolution of handwriting begin. The question "What skills do you hope a child will come to school with" asked during the teacher interviews assisted in defining the starting point of this evolutionary journey.

Many teachers noted that for some students who had been exposed to handwriting either from home or pre-school environments, their journey had already begun. The majority of the teachers expressed an ideal starting point being when children came in with the ability to hold a pencil correctly, write their name and have a basic understanding of letters. It is acknowledged that the beginning point of the evolution of handwriting begins long before the new entrant classroom. However, for this research the evolution of handwriting begins at the point where a child starts school, as demonstrated by the teachers' expectations of the skills children bring to school. This usually starts with the child either writing their name on papers and belongings, or beginning to learn about how to write their name so they can engage in this occupational task. This name-writing behaviour also involves being able to hold and handle a pencil with enough control to be successful in the task. Children learning to write their name was mentioned as the first task in many of the teachers' handwriting programs.

Anna, “ I use name writing as a starting point, this is my initial assessment of what skills the child has come to school with. I can tell a lot about a child by watching them write their name”, and Clair, “ Most children start with writing their name on the first page of the book. Often only the letters within their name have any significance for the children, I build on this interest to introduce them to more letters”.

How name-writing is an important step within the evolution of handwriting.

The importance of name writing as the first stage of learning to write has been explored by McNaughton (1995). His findings suggest that in the early stages (pre-school level) of name-writing, the process is taught more as a drawing task, or a pure visual-motor task, and that usually the actual name of the letters and their sounds associated with it are attached to the name once the motor task has been learnt. Initially for many children it is not the wholeness of the letters which make up the name but the connection between the overall look of their name and the symbolic meaning associated to this word that is first communicated. These first messages are that this written mark is constant in its shape, and this shape of marks says my name.

Anna, “ I use the children's names as it is meaningful to them”.

The message being communicated is, 'My written name means me'. Therefore the first meaning communicated to children is that the tool of handwriting enables you to communicate a message. This understanding is a foundational piece in the jigsaw of learning to be literate (Clay, 2001). Consequently, children get a taste of the end point of the evolution of handwriting within their first task of name writing, as well as the desire to learn to master this tool which facilitated this occurring. The desire to master the tool of handwriting transforms into an occupation as it now has manifested value, by the child and the teacher.

The social meaning around the written form of a child's name and the fact that it communicates a message is an important step in the evolution of handwriting from learning to write, to writing to convey a message. In many ways it could be proposed that children writing their own name is the first recognizable, socially-shared task of 'being a writer'. To clarify, the whole name does not necessarily need to be written for the message of 'this is my name' to be shared. For example, a child named 'Imelda' forms an 'I' in her early attempt of name writing. She is aware that this 'thing' is her name as she recognises it, her understanding is shared and created with her teacher during the task of naming a drawing. Her teacher recognising the form 'I' that Imelda creates, and therefore through the shared understanding of what is produced, understand that this letter stands for her. Consequently Imelda writes a message understood by herself and her teacher even though she is not able to form all the letters of the alphabet. Initially the 'I' is laboured in its production, but the letter 'I' is soon quickly learnt by Imelda, enabling her to form it with ease. Imelda progresses onto focusing on the second letter of her name. This example demonstrates the cyclic nature of handwriting as a tool, and handwriting as an occupation. Therefore the 'evolution of handwriting' should not be considered as a series of steps to climb in a linear fashion taking a year to travel, but more like a spiralling process forever building on the previous step.

The next question is how do teachers know when a child has moved through this cyclic process of learning to write to being a writer? Teachers' goals provide some insight into expected outcomes after a year of learning.

Anna, " To be able to hold a pencil correctly, and be comfortable while writing. To be able to print uppercase, and lower case letters with the correct formation. Usually

children have mastered writing any letter from their memory with mostly correct formation after a term of school”.

All the teachers emphasized as a long term goal correct letter formation for both upper and lower case, and the ability to place letters on the lines correctly. Anna used the word ‘comfortable’ and made reference to a child pulling from memory while Beth mentions the use of adequate pace, and Debbie also included writing their name correctly in her expectations. It may be that the interview questions shaped the teachers answers as the questions were directed at only handwriting and not at what the children would achieve with their handwriting skills. However their expectations did give some insight to the possible points where handwriting is demoted from an occupation to a tool.

Beth, “For the average kid I can usually get them to learn all the sounds and how to form it in the first term at school, and use this knowledge to start to write the first letter of a word in their story writing. So at the close of a year’s schooling, I would expect a child to be able to hold their pencil correctly, be able to print uppercase, lower case and their numbers all with correct formation and placement on the line, at a reasonable pace”.

The first part of Beth’s quote stresses once again that handwriting is not seen as a stand-alone task. The interesting aspect of the second part of the quote is around Beth’s use of pace. Similarities between Beth’s use of pace and Anna’s use of the word comfortable can be drawn. Comfort comes from being familiar; familiarity comes from recognition which is dependent on memory skills, which in turn assist with a child’s ability to write at a reasonable pace. For this to happen, fluency must be in place. Fluency does not exist until the child has moved from the deliberate laying down of networks, to practicing accessing these networks to the last stage when the process is so well learnt that it is automatic . This description of learning progressing from conscious to automatic (Shumway-Cook & Woolacott, 2001) is a secured notion within learning literature. An important aspect to consider is that different letters of the alphabet or different combinations of letters will be recalled with pace, while others may still be in the initial state of forming networks. With this in mind, the occupation of handwriting does come to an end. Initially it is cyclic, however when handwriting is consistently executed at a reasonable pace, while adhering to society’s expectations around

legibility, the evolution of handwriting merges entirely within the larger occupation of 'being a writer'.

It would seem that from the teachers' perspective handwriting starts off as an occupation, as it has manifested value. However as the year progresses handwriting as an occupation is demoted as a tool within a more valued occupation of 'being a writer'.

Summary

This chapter considers some of the human and non-human influences orchestrated by the teachers as they teach handwriting. The first theme 'wholeness of letters' demonstrated that the experience of learning to handwrite was consistently endowed with the message that handwriting meant the learning of the sound, shape, and name of the letter. By learning this 'wholeness of the letters', networks of flexible learning are laid down in the brain, enabling this learning to be drawn upon and generalised into the other literacy tasks of learning to read and learning to write. These two streams the 'wholeness of letters' and the laying down of networks made up the task of handwriting. In the early stages handwriting is valued by the teachers as they see it as the foundation for all other literacy learning to be organised upon.

The second theme 'risk taking and independence' was the most complex theme to illustrate. This theme considered how teachers facilitated risk taking behaviour. This included the careful grading of the task to ensure a safe learning environment ripe for risk taking behaviour. The final element considered how the teacher enabled the child to learn from their risk taking through the process of feedback. The process of feedback emerged as a continuum, with teachers aiming for the child to be more and more independent in their writing skills.

The third theme 'a child's desire to grow up' considered how teachers harnessed what is internally motivating to the children in their class. Teachers used concrete props of different size books, or different handwriting tasks to highlight the acquisition of skills. Through these concrete props the teachers tapped into the child's desire to do more grown-up work. Teachers use this motivation to get children to engage in tasks above their developmental level, fostering risk taking and increasing independence.

The relationship between these three themes and handwriting as a valued occupation has been explored. Manifested value was communicated by the classroom climate created by the teachers during the task of handwriting. The classroom climate can be shaped by the time of day the handwriting session takes place, what subjects it was scheduled next to, as well as the formality and routine which surrounds the task. Many teachers created links with home around the development of a child's handwriting skills which may further increase the value placed on the task in the eyes of the child.

Analysis of the data collated suggests that handwriting starts off as an occupation, as it has manifested value. However as the year progresses handwriting as an occupation is demoted to a tool by the teachers. This transformation is complex and is described as an 'evolution of handwriting'. This evolution of handwriting is initially a cyclic process of occupation, tool, occupation, to the final demotion to a tool. Handwriting's demotion to tool status relates back to the laying down of flexible networks. The teachers' quotes suggested that once the behavioural outcome of handwriting was completed with comfort and pace, that the laying down of the initial foundations for literacy learning were also in place. The behavioural outcome of handwriting was no longer seen as a reflection of networks being built, but of a sign that the networks were in place. Thus handwriting in the eyes of the teachers dropped in manifested value to 'tool' status.

Chapter Five - Discussion

Introduction

The teachers' voice is rich in knowledge, however the challenge in this thesis is to take this description and apply it to everyday practice. This research set out to answer the question; "How do new entrant teachers teach handwriting to year one students". Greater understanding of the physical and sociocultural aspects of the research question were facilitated by the following aims;

- To describe teacher's reflections about how they teach handwriting and what has influenced why they do it in their particular way.
- To gain an understanding of the expectations and experiences facilitated by teachers that impact on the task of handwriting.

The third aim ensured that the findings were made applicable to occupational therapists working in the area of handwriting intervention.

- To apply this learning to assist occupational therapy practice in the area of handwriting.

The research question and supporting aims were developed in response to an identified gap in the literature related to occupational therapists' handwriting intervention. As identified by Woodward and Swinth (2002) and Feder, Majnemer and Synnes (2000) occupational therapists have traditionally focused on handwriting intervention from a bottom-up perspective, with limited studies occurring from a occupational or top-down perspective.

Traditionally, handwriting interventions mostly considered the task of handwriting from a biomechanical or visual motor integration perspective (Chu, 1997; Amundson, 1992). When using this intervention focus therapists often worked in isolation from the classroom environment with occupational therapy services commonly based in stand alone rooms within a school setting or in health based clinics (Erhardt & Meade, 2005). This was appropriate when using this bottom-up type of intervention focus as the problem was defined as a developmental issue within the child (Ideshi, 2003), not as a

mis-match between the child and the environment. Consequently this bottom-up perspective did not support the need of the occupational therapist to seek out the voice of teachers, therefore little emphasis on the expectations and meanings attached to the task of learning to handwrite within the classroom setting have been articulated.

In Chapter 4 data from six teachers describing how they taught handwriting was presented. In addition the expectations that teachers hold for their student and how these expectations shape the way teachers orchestrate the task of learning to handwrite was introduced. In this chapter the insights gained from the interviews and analysis of the data will be considered through an occupational lens, the understanding gained from this perspective will inform occupational therapy practice, thus address the third aim of this research.

The chapter is organised in the following sequence, firstly the core findings drawn from the results chapter are discussed. These core findings are then compared with literature from motor learning theory, occupational therapy and literacy development. The next section of the discussion applies the knowledge gained from the findings to assist everyday occupational therapy practice in the area of handwriting intervention. The final section proposes an early intervention strategy and provides suggestions for future research. Limitations of this research are made transparent leading into the concluding section which summaries the key points and finishes by reflecting on the original research question.

An occupational lens

Occupational therapists have traditionally viewed handwriting as a performance component motor activity that children need to acquire in order to be able to participate in learning in the classroom. Therefore the lens applied to these type of research studies has been that of a reductionist. However, as in other research studies like Chapparo and Hooper (2002 & 2005) and Wiseman, Davis and Polatajko (2005), the profession, in returning to its roots, is more aware now of not only considering tasks from a reductionist perspective but is coming to understand the value of considering the expectations, experience (Lawlor, 2003) and meanings surrounding a task. This process is facilitated by viewing the data through an occupational lens (Bowden, 1995; Laliberte- Rudman, 2002). In using an occupational lens, the researcher and therefore

the profession gains insight into the meanings embedded within the task of learning to handwrite, in doing this more awareness of the interactions that occur between the child and the environment both human and non human is facilitated (Nelson, Jepsen-Thomas, 2003). Utilising an occupational lens therefore supports the premise that learning to handwrite is the result of a person, task and environment interaction. For this reason an occupational lens also aligns with more modern consultative service delivery models endorsed by the Ministry of Education (Hasselbusch, 2007).

The core finding

Handwriting is an occupation, moreover from the teacher's interviews it appears that handwriting starts off as an occupation and then is demoted to a tool. This unique finding has been facilitated through viewing the task of teaching handwriting through an occupational lens.

Occupational therapists' view of handwriting

Within occupational therapy literature, handwriting is considered an important tool which assists in enabling children to fulfil their occupational role of being a student (Feder & Majnemer, 2007). The specific use of the term 'tool' is found in the literature written by Rosenblum, Weiss and Parush (2003) and Feder & Majnemer (2007). More commonly the terms, skill, (Chu, 1997; Amundson, 2005; Feder, Majnemer & Synnes, 2000) activity, (Marr, 2005) and task (Marr & Cermak, 2002) are used to describe handwriting. All of these terms are commonly used when describing a person engaging in the lower levels of occupational performance (Primeau & Ferguson, 1999).

Occupational performance is described as engagement at an overt or covert level, requiring the coming together of complex skills (e.g. motor, cognitive) which enable habits of actions and behaviours to develop (Nelson, 1988). Coster (1998) has defined four levels of occupational performance, these levels are demonstrated in Table Four. A brief description of what inquiry at each level would focus on is included in the left hand column. The right-hand column presents possible questions which the occupational therapist may use at this specific level to support data gathering.

Table Four: Levels of Occupational Performance

Level	Description Of Level	Guiding Questions
Level one	Participation The child's participation in the occupations and opportunities typically expected of or available to a child this age and culture	Is the child doing or attempting to try and do what is expected of him / her within their culture and the setting?
Level two	Complex task performance The child's performance of important complex tasks expected of his or her same age peers in this culture and context	How well is the child doing this compared to others?
Level three	Activity performance The child's performance of specific activities required to accomplish the major task expected of or desired by him or her	What are the child's strengths and weaknesses within this task?
Level four	Performance components / component processes The child's basic processes or components necessary for the performance of daily tasks and activities	Does the child have the developmental skills to support doing the task?

Coster (1998)

Inquiry by the occupational therapist at the differing levels guides intervention in a particular way. Inquiry at the top level for children looks at participation (e.g. the child's engagement in the task of handwriting within the context of the school day), while inquiry at the bottom level looks at performance components (e.g. testing a child's in hand manipulation skills to see if they are developmental appropriate for a child of that specific age) (Primeau & Ferguson, 1999). Traditionally inquiry at the bottom levels (hence bottom-up approach) has been the perspective taken by many occupational therapists when intervening with handwriting difficulties (Woodward & Swinth, 2002; Feder, Majnemer & Synnes, 2000).

Gradual awareness of handwriting being more than a tool is beginning to occur in literature as demonstrated by Feder and Majnemer (2007) who also describe handwriting as a complex task nestled within the occupation of education (Coster, 1998; Primeau & Ferguson, 1999). Complex tasks sit at the second level of the four levels

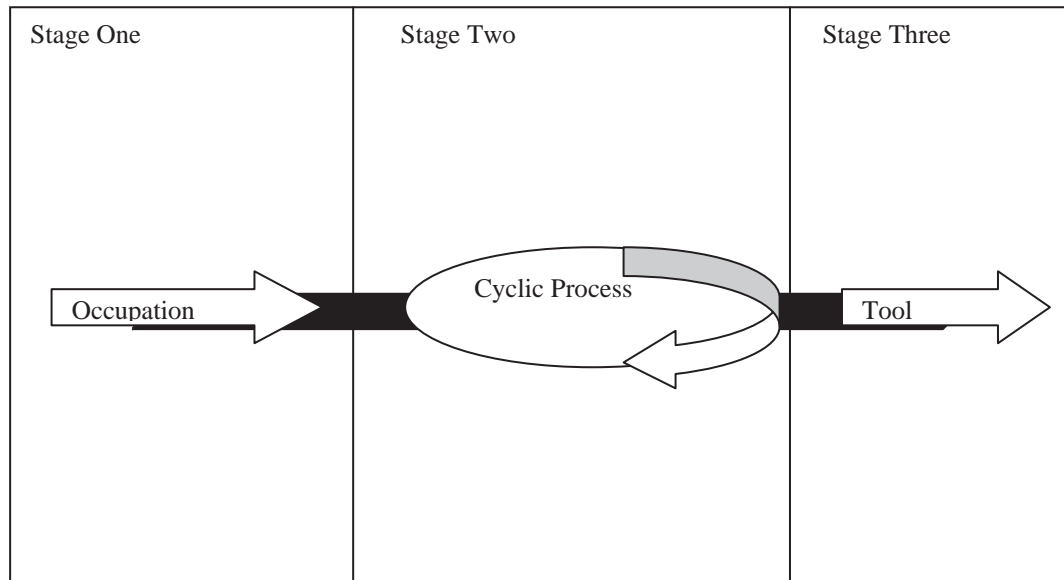
used to describe occupational performance (Coster, 1998; Primeau & Ferguson, 1999). However Feder and Majnemer (2007) stop short of describing handwriting as an occupation. In contrast the teachers in this study placed meaning on the task of learning to handwrite, therefore initially giving it occupational status (Humphry, 2002).

Handwriting as a occupation, Handwriting as a tool

As noted in Figure One below, stage one of learning to handwrite (the occupation stage) is initially seen by the teachers as a process which assists in developing the child's networks of understanding around knowledge of letters and literacy. Due to the process of forming internal networks within the brain the child's initial acquisition of learning to handwrite is slow. The process is slow as each child has to create, then organise the information they gain from the teachers' teaching of the wholeness of letters onto their developing network (Clay, 1991). Teachers acknowledgement of the building of these foundational networks about the written code of language appears to be why they initially place so much value in learning to handwrite. Consequently it is the value the teachers place on the task of handwriting and its connection to the child's development of learning to be literate which supports the claim of this research that handwriting is initially viewed by teachers as an occupation.

This finding, developed from the teachers' voice is expanded by stating that handwriting starts off as an occupation but is demoted to a tool once it can be completed with comfort and speed. When handwriting is conducted with comfort and speed the child is not consciously thinking about the task of forming the letters and managing sizing and spacing but is focused on communicating a written message. At this stage the movements of handwriting are automatic and therefore handwriting is demoted from a occupation to a tool.

Moreover, drawing from the teachers stories, it appears that this process of handwriting as an occupation and handwriting as a tool also includes a period in which the child continually shifts between learning to write - the occupation of handwriting and writing to convey a message - handwriting as a tool. This period is described as a 'cyclic process'. Figure One below illustrates the three stages of handwriting.

Figure One: Stages of Handwriting

During the cyclic process stage the child is observed forming some letters effortlessly while other letters are still laborious in their formation. These stages of occupation, cyclic process and tool are physically seen through the child's speed of writing. Therefore one way of considering the difference between handwriting as an occupation, a cyclic process and handwriting as a tool is related not so much to the value given to the actual writing but to the varied processes that enable the task of handwriting. In the occupation stage writing is slow due to networks being developed, in the cyclic process stage some of the networks are formed and accessed at a automatic level, while others are still being formed. Consequently some letters are formed with pace while others are formed slowly. In the tool stage of handwriting all of the networks are formed and accessed at a automatic and effortless manner. This last stage 'tool' was described by the teachers as being completed with comfort and pace (speed). Therefore speed is a key indicator as to whether the child is engaged in the occupation stage of handwriting, cyclic process or the tool stage.

Transformation point from occupation to tool

Insight into the transformation point in which handwriting as an occupation is demoted to a tool requires more discussion, in particular the finding that comfort and speed is an observable outcome signifying handwritings demotion to tool status.

Comfort and speed of handwriting are observable actions that directly affect the expectations and value teachers place on the task of handwriting. From the teachers' perspective it was the differing underlying processes occurring within the child during the engagement of handwriting which affected the expectations communicated by the teacher. For the teachers the progression of handwriting from an occupation (the process of laying down networks, a cognitive skill) to a tool state (utilising the networks as demonstrated by speed and comfort, an automatic skill) facilitates a shift in the value and expectations they placed on the task of handwriting. Connecting changes in the children's underlying processing to teachers shifting values enabled a defining point in which handwriting as an occupation changes status to that of a tool.

It needs to be noted that cognitive and automatic (autonomous) states of learning are accepted concepts used to describe the difference between the initial stage of skill acquisition and end stage of skill acquisition within motor learning theory (Fitts and Posner 1967, cited in Shumway-Cook & Woollacott, 2001). The cognitive stage of skill acquisition takes large amounts of cognitive activity hence the terminology used. In contrast the autonomous stage, skill mastery; requires a low degree of attention. In application to this research, initial skill acquisition is seen as the occupation of handwriting and mastery as handwriting as a tool (Shumway-Cook & Woollacott, 2001). However combining the observable learning behaviours of these underlying process's to the transformation point of a task from an occupation to a tool has not been considered before.

Although others have acknowledged how occupations develop meaning and purpose or are transformed in the meaning they hold (Humphry, 2006; Nelson & Jepson Thomas, 2003; Pierce, 2001) specific connection to motor learning theory (Shumway-Cook & Woollacott, 2001) has not been discussed. It is unusual in occupational therapy literature for change in status of an occupation to be specifically connected to the underlying

processes occurring within another person. However in this research the difference between developing and using the literacy networks within the brain of the child and the change in expectations and values of the teacher are drawn together to help explain why handwriting is initially given occupation status and then why handwriting gets demoted to a tool.

The outcome of combining these two bodies of information together, motor learning theory and the teachers perspective, has facilitated a novel way of combining two usually competing views (reductionist and occupational) to explain how and why the task of handwriting changes in manifested value from the teachers perspective.

Reflecting the teachers' voice against research

'Stuck' in the occupation of handwriting

For many children the skill of writing with comfort and speed is not easily achieved. If comfort and speed (automatic level of learning) is not achieved for all the letters it is possible that a child does not move out of the cyclic occupation-tool-occupation stage and remains stuck at the occupation (the process of laying down networks) stage of learning to handwrite. This means a child has to spend too much effort either directing their hand to write or searching for the correct letter knowledge within their literacy networks. The time spent searching their literacy networks may assist in explaining research findings which demonstrated that children with handwriting difficulties spent more 'air time' with the pencil off the paper between letters than children without handwriting difficulties (Rosenblum, Parush & Weiss, 2003; Rosenblum, Goldstand and Parush's 2006). Rosenblum, et al.(2006) found no significant correlations linking a child's 'air time' during the task of handwriting to their biomechanical or ergonomic abilities (e.g. sitting posture and pencil hold). However a connection between 'air time' and handwriting fluency was found. It needs to be noted that there are cultural issues to consider as the children studied wrote in Hebrew language. However this observation of pauses during writing has also been documented by an American author observing children writing in English (Benbow, 1995).

In discrediting biomechanical and ergonomic reasons for 'air time' Rosenblum et al. (2006) reinforced other author's proposed reasons for this phenomena. Reasons proposed included a child's ability to perform (Bonney, 1992) and plan a motor program with little conscious effort (Van Galen, 1991) as well as seeking visual feedback (Schoemaker, Ketelaars, von Zonneveld, Minderaa, & Mulder, 2005). Although not directly suggested in regard to the 'air time', Cornhill & Case Smith (1996) proposed that other functions such as perceptual motor skills and intelligence capabilities may be related to the task of handwriting. This phrase 'intelligence and processing abilities' can be equated to a child's ability to access their literacy networks. Therefore a possible reason behind the 'air time' phenomena demonstrated in children with handwriting difficulties may be explained as the time it takes a child to search their literacy networks for the information they require to select then form the correct letter.

All of these reasons support the observation that the ability to execute handwriting as a tool relates to the child being able to conduct the task with fluency as demonstrated by speed and pace. Therefore in alignment with the teachers perspective, the ability to be a fluent handwriter is affected in part by a child's formation of literacy networks as demonstrated by the timely execution of motor programs during the task of handwriting. Even with this awareness it needs to be acknowledged that some biomechanical features such as pencil grip may affect the learning time involved in developing literacy networks. In valuing the occupational stage of learning to handwrite the teachers also expressed placing value on the children holding their pencils effectively.

Activity performance in the occupation stage

All of the teachers valued the children holding the pencil in an age appropriate manner. A connection between the activity performance skills of pencil grip, letter formation and self monitoring skills (feedback) in regard to 'learning' to form legible letters requires discussion. Many studies exploring the relationship between legibility and pencil grip have been conducted at the third and fourth grade level (Koziatek & Powell, 2003; Dennis & Swinth, 2001). Outcomes of these studies has lead to the suggestion that pencil grip does not influence legibility of handwriting. However, at this level (third and fourth grade) children's handwriting would be expected to be at the automatic level of learning (tool stage) (Berninger, & Amtmann, 2004), thus requiring minimal visual guidance (Berninger & Graham, 1998). Therefore the influence of a child's pencil grip

blocking their ability to visually guide their hand should have limited impact at this stage of their writing development.

There has only been one study conducted on first grade children (Schneck, 1991). In this study, a connection between poor grip scores and being a poor writer (letter formation) was found; furthermore some of these children demonstrated decreased proprioceptive-kinesthetic awareness. Proprioceptive-kinesthetic awareness is a person's ability to perceive the position and force applied at different joints of the body in a seemingly unconscious manner (Parham & Mailloux, 2001). In Schneck's study the children with poor proprioceptive-kinesthetic awareness did not consistently correlate with them also being a poor writer. It needs to be noted that visual guidance in relation to the children's pencil grasp or handwriting ability was not recorded within the results of this study, neither was speed of output. However, Schneck building on the work of Levine, Oberklaid and Meltzer (1981) and Benbow (1995) suggests that often children with weak proprioceptive-kinesthetic awareness demonstrate the need to visually guide their hands to compensate for the decreased sensory information gained from their proprioceptors. These authors seem to consider visual guidance as a compensatory strategy rather than a skill to assist with learning the task of handwriting.

Consequently if handwriting is considered as an occupation, cyclic process and tool as suggested within this research the interpretation of visual guidance changes. By framing Schneck's (1991) research in the terms developed from this research it is possible that some of the children in Schneck's study were still at the 'occupation' stage of handwriting (an appropriate stage for grade one children) and therefore possibly used visual guidance to access their literacy networks to enable them to demonstrate their knowledge around letter formation. The perspective in which the task of handwriting is framed also affects the interpretation of Levine et al. (1981) who remarked that children who visually guide their hands during handwriting made the task of writing inefficient. Possibly the task of handwriting is inefficient as the child is in the occupation stage of learning to write. Consequently their inefficiency is an observable behaviour of the child still trying to master the first stage of handwriting. Therefore a connection between learning to write (occupation stage) and being an inefficient writer in regard to letter formation can be drawn.

From the perspectives developed from this research it may be possible that the pencil grips used by the first grade children in Schneck's (1991) research blocked their ability to receive visual feedback from the pencil tip and that this was what caused them to have poor writing. This would help explain Schneck's finding that weak proprioceptive-kinesthetic awareness was not a consistent factor in children demonstrating poor handwriting skills.

Although Schneck (1991) noted that the early stages of handwriting depend largely on visual control, the body structures perspective which framed her research considers the task of handwriting from sensory motor perspective with little consideration of visual guidance being an important aspect in learning letter formation. Even with this awareness of the role of visual control in early writing Schneck does not seem to apply this understanding to her participants who were just at grade one level. It is possible that Schneck expected all the children to be at the tool stage of writing by grade one.

Schneck's (1991) finding although dated and conducted within America, viewed through an occupational lens strengthens the assumption that pencil grip effects a child's ability to gain immediate feedback from their hand, which in turn affects the development of a child's literacy networks. One part of this network being the motor programs used to direct the formation of letters. The importance of exploring the effect of visual feedback on children learning to write (occupation stage) has been suggested by Berninger & Graham (1998) who noted that developing writers appear more vulnerable when writing without vision.

This connection of visual guidance to learning places a different emphasis on the relationship of pencil grip and handwriting. During the occupation stage of learning to handwrite a child would benefit from the immediate feedback (Shumway-Cook & Wollacott, 2001) of watching the letters being formed by their pencil tip as they write. A pencil grip which enabled visual monitoring to occur should assist in decreasing the time it takes a child to learn to form their letters. Therefore a connection between pencil grip and the time it takes a child to move from an occupation stage of handwriting to a tool stage can be drawn. This reason is possibly why teachers valued their children using an appropriate pencil grip during handwriting. This value is in contrast to current trends suggested in recent international handwriting research which place minimal importance of pencil grip irrespective of the age of the child (Koziatek & Powell, 2003;

Dennis & Swinth, 2001). International research has often also focused on the sub skill of handwriting speed (Graham & Weintraub, 1996; Feder & Majnemer, 2007).

Traditionally handwriting research has used a child's handwriting speed as one criteria for justifying services or technology (Preminger, Weiss & Weintraub, 2004). This has been problematic as the outcome of many studies have demonstrated that there is a huge variance between normal handwriting speeds depending on the actual writing task involved (Amundson, 2001). Furthermore research has also demonstrated that children with incorrect letter formation can write as quickly as children with correct letter formation and that increased speed of writing often equates with legibility difficulties (Graham & Weintraub, 1996; Amundson, 2002) therefore the usefulness of timed writing tests as assessment tool (Karlsdottir & Stefansson, 2002) has been questioned.

In contrast to these findings, the teachers view speed of handwriting not as a measure of dysfunction but as a way of informing the next step of their handwriting program. While handwriting researchers use speed to highlight whether handwriting performance was dysfunctional, teachers use handwriting speed as a sign to alter their orchestration of teaching handwriting from developing letter knowledge to fine tuning the readability of handwriting. The teachers voiced that speed and comfort were observable measures that demonstrated to them that a child had moved from learning to handwrite to using handwriting to convey a message.

Another important component from the teachers' data was that they observed and embedded the task of handwriting within varied activities within the classroom day. This not only facilitated generalization of the skill of handwriting, it also enabled the teacher to see handwriting being used in a number of ways. For example as a straight visual motor task copying unknown words from the white board, to a written language task such as writing a story. By considering the task of handwriting throughout the varied writing expectations of a day, the teachers concept of the child's level of 'comfort' was able to be observed. The skill of writing with comfort was observed in the children by their ability to vary the speed and legibility of their writing to match the expectations of the task. Therefore comfort and speed were not considered as isolated performance but as an outward sign that the child could match their handwriting ability to the varying expectations of varying tasks within the day.

Letter formation was another element of handwriting which changed in meaning and value, depending on whether it was being taught in the occupation stage or the tool stage. All six teachers valued teaching correct letter formation. In the occupation stage the teachers used strategies of demonstration and modelling of correct letter formation as a way to teach letter knowledge. From the teachers' perspective in the occupation stage of handwriting teaching 'letter formation' (letter orientation and shape) is important due to its connection with helping a child visually discriminate between letters, therefore supporting a child's overall letter knowledge (letter orientation, shape and voice). The benefit of the 'correct' letter formation is that it helps chunk letters into similar groups (Clay, 2001; Karlsdottir & Stefansson, 2002). In utilising a teacher's perspective, it would appear that correct letter formation is important to the development of a child's literacy networks and is therefore important during the 'learning to write' stage.

In contrast at the 'tool' stage of handwriting the teachers usually do not overtly model how to form letters. In alignment with this decreased value placed on letter formation, it is only deemed important in regard to assisting with fluency and readability, as the literacy networks should be securely in place. Adults often measure the product of handwriting by how legible or tidy it is (Rosenblum, Weiss & Parush, 2003). From the interviews, the majority of teachers began to voice the expectation of tidiness once the child was writing with speed and comfort. It therefore needs to be highlighted that when handwriting is at a tool stage, a child's writing may not necessarily be tidy, as this expectation of the teachers has only just begun to be voiced. Teachers taught letter formation and letter knowledge first, then once these concepts were secure they then focused on tidiness, sizing and spacing if they directly affected the readability of the work. Therefore a class of children at the tool stage are more likely to have their teacher stress components of tidiness rather than in the occupation stage.

The finding that handwriting is viewed as an occupation, a cyclic process of occupation tool and then lastly a tool affects the meaning and therefore the expectations voiced by the teacher. This in turn affects how the teacher orchestrates the task of teaching handwriting. Understanding the meaning behind these different stages of handwriting enables occupational therapists to critically apply international research to the unique setting of Aotearoa / New Zealand. In particular research around pencil grip, air time, and letter formation are applied differently at the occupation stage of learning to write as opposed to the tool stage. International research can be used to facilitate the therapists ability to define the problem when observing a child participating in handwriting tasks within Aotearoa / New Zealand classroom setting, however this needs to be done once an understanding of the meaning behind the task has been clarified. This clarification is important as each stage of learning to handwrite alters how the task of handwriting is orchestrated by the teacher and therefore alters the application and relevance of international handwriting research.

Awareness of the three stages of handwriting occupation, cyclic process and tool stage provides a structure that can be transposed onto the task of handwriting even though each classroom literacy environment may be orchestrated differently. Each classroom is orchestrated differently as each class has a unique social environment. Therefore the meanings attached to the task of handwriting are affected by the interactions between the child and the teacher. These interactions highlight that learning to be literate is a co-constructed activity (Larson & Marsh, 2005; MOE, 2003; McNaughton, 1995).

Co-construction

Social messages are communicated from the teacher to the class and from the class to the teacher. This process of sharing and shaping social messages embedded within a task is described as co-construction. The Ministry of Education (2003) considers literacy learning to be a process of co-construction. The Ministry of Education advocates that through the act of co-construction, diversity of learning styles and abilities are communicated and consequently accommodated for by the teacher as they orchestrate the culture of their individual classroom. Co-construction was used by Humphry (2006) to describe two actors constructing the experience together, in this case, the child and the teacher.

In this research one example of co-construction was highlighted through the joint negotiation between the teacher and what they impart (risk taking and independence) and what the children wish to engage in (activities which assist in growing up). These social messages are communicated and experienced as part of learning handwriting within the context of the class.

Moreover, part of a child's success in learning to handwrite is reliant on their ability to understand and perceive the subtle social messages embedded within the task (Well, 1999), for example, content of writing valued over presentation of writing. Success in learning to handwrite is also reliant on the teacher's ability to grade these messages to match the child's progression of learning. Many messages communicated from the teachers in this study were around the concepts of working independently and taking risks in the writing process. Therefore a connection can be drawn between many of social messages embedded within the task of learning to handwrite and young children's developing perceptions of the concept of 'work'. This connection may assist in explaining why five-year-old children consistently define handwriting as a work task (King, 1982; Wing, 1995; Chapparo & Hooper, 2005).

Perceptions of handwriting as work

In Aotearoa / New Zealand children start school throughout the year as they turn five. This practice, along with the wide diversity of skills individual children bring to school, means that within a class population there are children functioning at different levels of ability. This wide range of abilities can promote situations in which children compare their own abilities against the abilities of their class peers. The theme 'desire to grow up' sanctions comparison against others, with teachers subtly encouraging children to strive to do what the older class peers were doing. King (1982) proposed that the act of comparing to peers leads to a change in how children define work tasks. In particular if a child feels a task is too hard or tedious in comparison to the effort displayed by their peers, they begin to define that specific task negatively as work.

During the task of handwriting, teachers actively encouraged risk taking behaviour. Tasks which incorporate risk taking are by nature challenging and therefore hard. In turn, handwriting is more likely to be negatively perceived as work by older children, especially if they struggle with learning how to do the task. Therefore, the orchestration

of risk taking, desire to grow up and self-monitoring skills needs to be carefully conducted by the teacher. Mindful orchestration is required by the teacher to make the most of the small window of time in which the children define handwriting as work, without the negative overlay of work being 'hard and tedious'.

This window of time can possibly be controlled or stretched by the teacher, depending on how they orchestrate the experience of learning how to handwrite. The teachers in this study used two strategies within this window of time. The combined strategies of silencing their own expectations around tidiness, along with sparingly using peer pressure and comparison, possibly assisted in keeping this window open for as long as possible. When peer pressure was sanctioned by the teachers it was in relation to letter formation, rather than the more subjective components of tidiness. As noted in Chapter Four, minimal expectations around tidiness (a tangible product which could easily promote comparison amongst peers) occurs in the initial stage of learning to write. Possibly this technique assists in maintaining the childrens' notion that handwriting was a 'required' work task that was enjoyable and of value, as comparison against peers was discouraged by these teachers. This is in contrast to older children who classify work negatively in relation to their experience of how hard or tedious it is (King, 1982).

The occurrence of the theme of risk taking, alongside the theme of desire to grow up assists in explaining why ongoing struggling with handwriting may have such a negative affect on a child's developing sense of self and why handwriting is seen as the ultimate work activity in the eyes of a six year old child (King, 1982). The child's developing concept of work may also affect how they view themselves as a worker. This connection clarifies why many studies have demonstrated that ongoing difficulty in handwriting can affect a child's developing self esteem and sense of self (Sandler, Watson, Footo, Levine, Coleman & Hooper, 1992), and their opportunities in the future (Stewart, 1992; Sassoon, 1990).

Sense of self and a primary role for occupational therapy

The primary role of occupational therapy services provided in schools is to enable student's participation in experiences that are part of that context (Zivaini and Muhlenhaupt, 2006). Occupational therapists believe that through participation in

experiences embedded within the context of everyday life that children develop their mind, body and soul (Mandich & Rodger, 2006).

This reasoning is broader than that suggested by Chu (1997) and Amundson, (1992) who suggested handwriting was an appropriate domain of concern due to our specific knowledge in fine motor, sensori-motor and neurological development. Respectfully, although specific performance component knowledge is helpful, this research suggests that handwriting is our appropriate domain of concern due to the link between handwriting and a child's developing sense of self. This link comes into focus when the interaction between the child, the task and the environment is considered.

It could be argued that learning to handwrite has an impact on a child's mind through learning to be literate; their body, through learning to control the pencil, and their soul through their developing view of themselves as a worker. A child's developing view of themselves as a worker may affect their developing sense of self. This connection occurs as a result of mastering a challenging task that requires commitment. Tasks which include these elements (such as learning handwriting) have been demonstrated to enhance self-efficacy and self-esteem (Farnworth, 2000; Passmore, 2003). Connecting learning to handwrite with a child's developing sense of self highlights why this is an important task for occupational therapists to assist children to participate in.

In summary the link between a child's developing sense of self has been directly related to their experiences taken from participating in the childhood occupation of 'learning' to handwrite. The task of handwriting has been used to describe how through the process of co-construction the sharing of sociocultural messages from the teacher to the child may occur. This passing on of sociocultural messages may affect the child's interpretation of the task in relation to themselves and their developing abilities as a learner. Learning being the work task of school aged children.

This section has viewed handwriting through an occupational lens, in doing this the meanings behind the task of learning to handwrite have been exposed. The next section considers how to apply these insights into daily practice. However, before this can occur the shared values and practices of teachers and therapists highlighted by viewing the task of teaching handwriting through an occupational lens need to be articulated.

Implications for Occupational Therapy

Shared Values

Literature in the area of school-based practice usually highlights the differences between therapists and teachers (Sudsawad, Trombly, Henderson & Tickel Degnen, 2001; Prigg, 2002; Orr & Schkade, 1996) and the difficulties this causes in providing ecologically valid services when addressing handwriting difficulties. In particular a discrepancy between the teachers desire for therapists to acknowledge human interaction goals such as working independently, and sharing materials was noted (Orr & Schkade). However in this study a common ground between therapists and teachers was found, this being 'forecasting future roles' and 'learning through doing'.

Forecasting future roles

The teachers were aware of what was motivating and important to the children within their classroom, they took this knowledge and harnessed it. In many ways through the process of co-construction the teachers perceived that the children had already forecasted their own role of 'being grown-up'. The teachers shaped this role during the task of learning to handwrite by defining it into the more clearly forecasted vision of being a writer. In doing this the teachers shaped the children's desire to be grown-up to the forecasted role of being a writer (creation of text to communicate a message), rather than on the closer goal of learning to handwrite (writing the alphabet or holding the pencil).

The teachers forecasted goal of the children becoming writers shifted handwriting from a visual motor task to one of written language. The teachers deliberately orchestrated the task of handwriting to facilitate the skills needed to achieve this forecasted role. Through the varied processes of orchestration (Larson, 2000) the teachers demonstrated a relationship between what they teach today and what they hope for in the future for their students. This connection was evident by the teachers encouraging risking taking and 'wholeness of letters' early in the handwriting process, with the intent to assist the

students to develop the skills which would enable them to become independent writers. In doing this the expectations and therefore the experience of learning to handwrite, were also shaped by the teacher to reflect this forecasted vision of the children becoming a writer.

Similarities between therapists' use of forecasting future roles and the teachers' use of this technique can be drawn. Within the field of occupational therapy conditional reasoning literature (Fleming, 1994) forecasting future roles is one aspect used by therapists to facilitate motivation. Through the therapeutic process, engaging in discussion about valued roles, a therapist assists a client to construct a vision of a worthwhile place for themselves in a future role. It is this perceived future which motivates a client to overcome many hurdles (Fleming, 1994).

Many commonalities between a therapists' use of forecasting future roles and the teachers use can be drawn, these include motivation, defining necessary skills to be learnt and shaping experiences towards achieving the forecasted vision. Through the tool of forecasting future roles a common starting point in which communication between the teacher and occupational therapist can develop from has been highlighted. Another common starting point closely linked to forecasting future roles is that of 'learning through doing'.

Learning through doing

The teachers valued 'learning through doing', with all the teachers teaching handwriting by doing handwriting. This value of 'learning through doing' was demonstrated by their actions, however the actual phrase was not used by the teachers. Occupational therapists also value 'learning through doing' (Kramer, Hinojosa & Brasic Royeen, 2003; Crabtree, 1998). Both occupational therapists and teachers facilitate the learning process by engaging the child in the real task.

Within occupational therapy practice 'learning through doing' is informed by the Motor Learning Acquisition Frame of Reference (Kaplan, & Bedell, 1999). This is one frame of reference that can inform occupational therapy practice. Within this frame of reference motor skill learning is seen as the result of a positive task, child and environment match. The main theory base informing this frame of reference is motor

learning theory and a collection of learning theories, including Vygotsky (Kaplan & Bedell, 1999). Vygotsky's influence is demonstrated in the Motor Skills Acquisitional Frame of Reference by acknowledging the impact the human environment has on the learning process. Vygotsky's theory was one of the first to consider child development as an interaction between the child and society and the value of learning societies tasks in context with others (Well, 1999). His most well known influence is the concept of 'zone of proximal development' (ZPD) (Well, 1999). ZPD is used to capture "the distance between the actual development as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (1978, p.86, cited in Well, 1999). Vygotsky's concept of ZPD highlights that learning is an act of co-construction between the teacher and child (Larson & Marsh, 2005) which occurs during problem solving real life tasks. He also advocates the value of orchestrating tasks above the child's current ability, as this promotes the need for co-construction of knowledge to occur (Well, 1999).

Principles of the Motor Learning Acquisition Frame of Reference (Kaplan, & Bedell, 1999) theory are that learning occurs best when the child is engaged in the whole of a task within the appropriate context. Therefore in line with Vygotsky's reasoning the whole task would also need to include the co-construction process. The other principles of motor learning theory include the concepts of practice and feedback. Practice is when the child has the occasion to repeatedly try to produce motor behaviours that are challenging and beyond their current level, feedback assists the child in understanding the results of his or her movement (Kaplan & Bedell, 1999; Shumway-Cook & Woolacott, 2001).

Through the common link of 'learning through doing' the framework of Motor Skills Acquisitional Frame of Reference (Kaplan & Bedell, 1999) has been highlighted as a guiding frame of reference that occupational therapists can use which fits the teachers' way of doing. Utilising a framework that supports the teachers' current practices will assist occupational therapists to provide ecologically valid services.

Research has demonstrated that using motor learning theory to guide handwriting intervention has positive results (Denton, Cope & Moser, 2006; Ste-Marie, Clark, Findlay & Latimer, 2004; Jongmans, Linthorst-Bakker, Westerberg & Smits-

Engelsman, 2003). Ste-Marie, et al. (2004) demonstrated that during handwriting instruction random practice (structured variety) resulted in better retention of learning than when blocked (repetitious) practice was utilised. In this study the authors were testing the different variables of 'practice' the task just happened to be handwriting. Occupational therapy researchers, Denton, Cope and Moser (2004) applied motor learning principles tested in studies like those of Ste-Marie et al. (2004) to the real task of teaching handwriting. Denton, Cope and Moser (2004) compared sensory motor handwriting intervention against handwriting intervention which followed a motor learning framework. Intervention using a motor learning framework resulted in better handwriting acquisition than the sensory motor group. Both of these studies included control groups within their research design.

Motor learning theory provides a robustly-researched base which can be assimilated into an occupation-first intervention perspective without jeopardizing the guiding philosophy of occupational therapy (Mandich & Rodger, 2006). Many of the concepts and strategies utilised by the teachers' mirror motor-learning theory, these being: engaging in the whole of the task (learning through doing); knowledge of results (self monitoring skills); short bursts of blocked practice (formal handwriting tasks); and generalization into random practice (creation of text). These concepts are embedded in the multiple layers of the teachers handwriting programs.

Multiple Programs

The data demonstrated that the teachers run multiple programs to accommodate and support a child's progression from handwriting as an occupation, to handwriting as a tool. Each differing stage of handwriting reflects a change in the teachers expectations, these changing expectations affect how the teachers' orchestrate the task of handwriting. The broad connections between the stage of handwriting, the teachers expectations, the orchestration of the task and the observable actions of the child are illustrated in Table Five: Stages of handwriting.

Table Five: Stages of handwriting

Stages of handwriting			
Stage of handwriting	Teachers' expectations	Teachers' orchestration of handwriting tasks	Child's observable actions
Occupation	To participate in the experience of learning to handwrite and writing.	Teaching the sound, shape and name of the letter to whole class.	Engaging in writing their name, handwriting and writing tasks
	To begin to develop some letter knowledge as demonstrated by producing letters which begin to resemble letters.	Silencing the need for tidiness.	Verbalising and demonstrating recognition of letters, either by sight, sound, shape or name.
	Formation may be more at drawing stage rather than at a formation stage.	Encouraging risk taking behaviour, by getting children to try write their name on papers/ sign in sheets etc.	Holding the pencils and drawing tools in a number of ways, altering between immature and more mature patters.
	To hold their pencil in an 'effective and acceptable way'.	The direct teaching to the whole class on how to hold a pencil correctly.	Engaging in a wide variety of pencil and paper tasks demonstrating increasing control over a pencil.
	To develop control over a pencil	Use of pencil grips and visual aides to support the development of this skill.	Formation of letters may be at a drawing stage. Visual guides hands to form or draw the letters.

Stage of handwriting	Teachers expectations	Teachers observable practices	Children observable actions
<p>Cyclic process of occupation tool</p>	<p>To increase participation in handwriting and writing tasks.</p> <p>Decrease in amount of time taken to complete a writing task.</p> <p>To form most letters with correct letter formation.</p> <p>To develop basic letter knowledge for letters which are not secure.</p> <p>To mostly use an effective pencil grasp.</p> <p>Letters which are secure and are formed correctly begin to have tidiness criteria placed on them.</p>	<p>Handwriting tasks require more repetitions or amount of work.</p> <p>Encouraging children to source and copy high usage words from environment props within the classroom.</p> <p>Instructed to form letters from their memory during handwriting tasks and during writing tasks known as invented spelling.</p> <p>Individual instruction to facilitate acceptable pencil grasp.</p> <p>The value of tidiness encouraged during some specific tasks.</p>	<p>Name writing mastered.</p> <p>Child writing more during handwriting time and story writing time.</p> <p>Producing more letters which are recognizable. Moving from drawing letters to forming letters. (drawing would be demonstrated by many short strokes added in a non logical inconsistent manner to create an end product which resembles a letter. At this stage the child possibly emphasises the letter matching a copy or a perceived image. However in the forming a letter stage, the child emphasis the flow of movement).</p>

Stage of handwriting	Teachers expectations	Teachers observable practices	Children observable actions
Tool	<p>Handwriting is completed with comfort and speed.</p> <p>All letters are formed legibly.</p> <p>Writing is readable.</p>	<p>Teachers provides numerous tasks which use writing as a tool to demonstrate understanding about concepts broader than knowledge of letters.</p> <p>Writing and handwriting tasks are qualified with timelines around matching the output of work with the quality of the product.</p> <p>Teacher provides class wide and or individual instruction on how to improve tidiness of handwriting.</p>	<p>Children use writing to demonstrate ideas and understanding about a range of topics.</p> <p>Children modify handwriting tidiness and speed to fit the expectations of each individual task.</p> <p>Children use visual surveillance to write rather than visual guiding formation of letters. (Surveillance occurs after the fact, while visual guidance initiates and supports the task of letter formation).</p>

As outlined in Table Five: Stages of handwriting, the teachers expectations affects how the task of teaching handwriting is orchestrated, which in turn affects the experiences of learning to handwrite. The experience of learning to handwrite is partially seen in the observable actions of the child. Moreover the teachers orchestration of handwriting tasks provides insight into possible areas of mis-match between a child's current level of observable behaviours and the orchestration of the task of handwriting. The teachers expectations could be easily developed in partnership with the occupational therapist to reflect ecologically valid goals for intervention

In Aotearoa / New Zealand new entrant classrooms multi-layered handwriting programs may be a common practice. The benefit of this multi-layered way of teaching handwriting is that teachers are able to support a class of children with a wide variety of skill level, this practice in itself facilitating a child, task, environment match. Therefore intervention based in new entrant classrooms which reflect the use of multi-layered programs should only require minimal intervention support as the environment is already structured to accommodate for children with varied handwriting abilities. Muhlenhaupt advocates the value embedding intervention into the naturally occurring classroom experience, however she that a 'continuum of intervention' (Muhlenhaupt, 2003) including pull out service delivery type intervention is sometimes also required.

Handwriting intervention

As noted in the preface, children with handwriting difficulties in Aotearoa / New Zealand are often referred later within their school career around the age of nine and ten years of age. This pattern of referrals has also been noted in international literature (Berninger & Amtmann, 2004). However, the knowledge of the three stages of learning to handwrite can be used to assist children with handwriting difficulties irrespective of their age and classroom placement. Occupational therapists can use this way of understanding handwriting to frame goals and interventions. In doing this the profession of occupational therapy could reframe the task of handwriting from one guided by bottom-up Biomechanical and Sensori-motor Frames of Reference to a complex task viewed from a top down perspective guided by the Motor Skill Acquisitional Frame of Reference. The Motor Skills Acquisitional Frame of Reference

is a flexible guide that can be used across the ‘continuum of intervention’ (Muhlenhaupt, 2003) and service delivery models.

Therapists work in schools in Aotearoa / New Zealand under an number of initiatives that include but are not limited to contracts through *Accident Compensation Corporation*, the *Ministry Of Education*, *Special Education ‘Ongoing Reviewable Resourcing Scheme’*, and *‘Moderate Contract for Children with Physical Disabilities’* (MOE, 2008). Regardless of contract children are referred to occupational therapy services when there is a mis-match between the child, the task and the environment.

In each case the therapists works through the occupational therapy process of referral, screening, assessment, intervention and discharge. A unique element of school based practice is the relationship building that occurs through ‘talking and walking’ (Hasselbusch, 2007). This on-the-go relationship building reflects the time pressured nature of meeting and talking with the key players involved in a child’s school life.

The process of ‘talking and walking’ may be strengthened by building on the shared values of ‘learning through doing’ and ‘forecasting future roles’. Questions seeking understanding around the child’s progression of learning, taking into consideration what skills they came in with, and where they currently are, is invaluable information that needs to be obtained during this process. Insight into each individual child’s progression of learning can be gained from work samples and comparison to peers from the same mainstreamed class environment. However the true picture of each child’s individual progress can only be taken from comparing work samples over periods of time and through discussion with the teacher. In addition to this, being mindful that teachers consider handwriting from a ‘wholeness of letters’ perspective may help the therapist communicate more meaningfully with the teacher and in doing this finding an ecologically valid way of addressing the handwriting concern raised by the teacher. One insight provided by this thesis is that therapists would benefit from considering handwriting in a broader way than a visual-motor skill, that is to consider it as “language by hand” (Berninger & Graham, 1998, p.12). With this perspective in mind the therapist can look for and facilitate discussion around the child’s ability to achieve the teacher’s forecasted role of one day being a writer.

Forecasting future roles – connection to intervention

Understanding that teachers may have a forecasted role for their students offers a starting point for inquiry around what the teacher's expectations and hopes for the particular child are. A discussion clarifying a realistic forecasted role should be one step within the intervention process. Clarifying if this forecasted role is the same for all the children under their instruction provides the therapist with insight into the teacher's values of inclusion and confidence in supporting the learning needs of the child. Reflecting back to the teacher their forecasted role for the students within their class assures a therapist that they are aligning intervention suggestions to match the values and experiences embedded within the overall classroom handwriting program. The therapist and teacher may be benefited from spending time clarifying what skills are needed for this forecasted vision to be realised.

Once a shared understanding of the meaning behind learning to handwrite for a particular class has been articulated, the therapist and teacher can work together to develop intervention strategies which reflect this forecasted role and therefore motivate students struggling to learn to handwrite.

Learning through doing- connection to intervention

Occupational therapists and teachers have a shared value of 'learning through doing'. 'Learning through doing' facilitates the likelihood of occupational therapists considering handwriting within the classroom context. Placing or conducting the 'doing of handwriting' within the classroom setting supports the notion that the occupation of handwriting is co-constructed (Humphry, 2006). This is important as it acknowledges the role of others in a child's development (Well, 1999).

In the case of the teachers within this research, occupational therapy intervention suggestions which reflect a value of 'learning through doing' are more likely to be implemented within a classroom setting as they will align with the teachers 'way of doing'. It is likely that teachers separate from this study have also been influenced by the work of Clay (1991, 1998, 2001) and her teaching of reading through reading, writing through writing stance. Therapists could seek out to see if the teachers they interact with also hold this value of 'learning through doing'. If the teacher does value

this, a Motor Skills Acquisitional Frame of Reference could be used as this aligns with the value of learning through doing.

Classroom observation

Classroom observation has become a more common practice when addressing handwriting difficulties (Feder, Majnemer, Synnes, 2000; Hasselbursch, 2007). The practice of classroom observation has assisted in broadening occupational therapy practice from a bottom-up perspective to one that enables inquiry at the other levels of occupational performance. However, it needs to be noted, that engaging in classroom observation does not necessarily ensure that a top down inquiry occurs.

Classroom observation focuses on how the child participates within their classroom routines, activities and expectations. Depending on the focus of the therapist these observations can include analysis at all four levels of occupational performance or stay tightly focused within one level of inquiry, for example skill performance. As noted earlier in this chapter the focus of inquiry shapes the intervention plan.

This research also highlights the importance of observing the teachers actions during the task of teaching and generalizing handwriting within the class day. Others have noted the importance of understanding the teachers handwriting curriculum (Terrer-Perez & Hynes, 2005) and conducting shared goal setting (Hanft & Place, 1996), however the suggestion to also seek out to understand the teachers sociocultural influences is a new extension of occupational therapy practice highlighted in this study. Awareness by the occupational therapist of the sociocultural messages embedded within the task of learning to handwrite is important as they may need to be transposed onto another program, especially if intervention occurs outside the class handwriting session, or is implemented by another adult, such as a teacher aide.

Through the tool of classroom observation, the therapist can be mindful of detecting the teacher's perspective of where the child is on the continuum of handwriting, 'tool' or 'occupation', as well as the actual skill level of the child. In addition to this, the teacher's orchestration of the task of handwriting can also be observed. The teacher's perspective may be communicated by the environmental supports observed within the

classroom, just as the child's abilities may be reflected in their use of these classroom supports.

If the teacher considers handwriting as an occupation the therapist needs to be mindful not to interrupt the child's overall learning of encoding and coding written language. If a classroom teacher orchestrates their handwriting programme with an occupation emphasis and the child's abilities are also at this level, the therapist and teacher together may decide that only slight modifications to the classroom handwriting program is required to assist a child's learning, as most of the environmental props (letter formation cards, high usage words, teacher demonstration) are already in place.

When handwriting is seen by the teacher as a tool, many of the classroom props that have been in place when a child was in the occupation stage of writing may have been removed from the classroom environment. For example, graded handwriting programs or the explicit modelling of letter formation by the teacher. Teacher's at the tool stage of teaching handwriting possibly do not do explicit handwriting instruction or if they do it is around the visual presentation of handwriting not the formation of literacy networks. Therefore therapists intervening at the tool stage often need to develop a program with the teacher that is supplementary to what is already occurring in the class.

A child in the cyclic process stage may need a mix of the environmental props depending on the letters they have mastered and the letters they are still learning. The class handwriting programme in itself probably would not need changing however it could be enriched by including the direct teaching of self monitoring skills. Written steps or pictures to guide self monitoring would be a useful environmental prop to include at this cyclic process stage. A child's ability to self monitor is especially important at this stage as only one or two letters may be in the occupation stage while others are at the tool stage. At this stage the child is probably doing greater amounts of text creation without supervision, therefore having increased opportunities to practice the incorrect formation of letters. Increasing the child's awareness of their targeted letters to self monitor may help decrease incorrect motor formations moving to an automatic stage. Learning self monitoring skills should be generalised from formal handwriting sessions into text creation simultaneously. In addition to this teaching technique, access to alphabet cards or wall posters that have letter formation directions included would also be useful addition to the classroom environment.

Handwriting in context

Ziviani and Muhlenhaupt (2006) stress the importance of using the natural class routines and opportunities as they enable students to participate with peers in the same learning experiences. This is important as positive participation in day-to-day experiences of life has been shown to directly affect a child's sense of self (Law, Patrenchik, Ziviani & King, 2006). Therefore if the primary concern of occupational therapists working in schools is to assist students in positively participating in the experiences offered within a normal school day (Ziviani & Muhlenhaupt, 2006) and the teachers' primary concern in the occupation stage of handwriting is to assist in developing literacy networks, both of these perspectives need to be considered in the development of an intervention plan for a child with handwriting difficulties.

The implication of combining these two perspectives being; that it would be more effective to try and modify a teacher's program rather than supplying a whole new program. In doing this the holistic nature of the teacher's overall literacy program is respected and kept (therefore the student stays on the same handwriting evolutionary journey), additionally the child engages in the same experiences as their peers (Ziviani & Muhlenhaupt, 2006) and is therefore in a position to take on the same social messages embedded within the task of handwriting as their class mates. In this thesis making progress in learning handwriting and the development of sense of self around growing up was one social message that is communicated through the task of handwriting.

The findings from this research suggest that if handwriting lessons were conducted outside the class handwriting time, the social messages embedded within the normal handwriting experience may not be communicated as strongly; therefore possibly changing the experience of learning to handwriting for those receiving extra assistance. This suggestion supports service delivery trends which encourage intervention within the classroom context (Muhlenhaupt, 2003).

However it is noted that push-in service delivery (Muhlenhaupt, 2003) is only favoured by a small number of teachers (Hammerschmidt & Sudsawad, 2004). No reasoning for this finding was provided. Possibly the preference of differing service delivery methods relates to whether the therapists and teachers share the same understanding of what

handwriting is within that specific class environment. This view also may highlight the degree of mis-match between the child's skill level and the classroom program. For example the class teacher may view pencil grip important as the children are in the occupation stage of learning to handwrite, while the occupational therapist guided by recent research trends of children in the tool stage of handwriting development does not view pencil grip as an area of concern.

A mis-match between the class program and the child's stage of handwriting development.

It needs to be noted that in some circumstances changing the experience of handwriting as provided in the classroom setting may be appropriate, especially around the age of nine years and upwards. When a child is around this age a mis-match between what the child needs and what the classroom context can offer may be too big a void. In these cases service delivery options which enable pull out services may be appropriate.

This suggestion is influenced by King's (1982) finding that as children age how hard or tedious they experience a task in comparison to others influences how they define it. This finding has remained constant over twenty years, also being noted by Chapparo and Hooper (2002). However in this more recent study (Chapparo and Hooper) the impact of the difficulty of a task in comparison to others was beginning to be demonstrated in children younger than nine years of age. These findings alludes to the fact that the suggestion of aligning with classroom programs may not always be appropriate, especially in the later years of the child's school career.

According to Kings (1985) findings around nine years of age (or younger) it is possible that each child will create their own meaning from engaging in the task of handwriting in context to how they experience it. Therefore removing the child from the class context may positively affect their experience of engaging in the task of learning to handwrite. Consequently, greater awareness of how each individual child perceives the messages embedded around the task of handwriting needs to be identified within the assessment process as this information has a direct impact on the child's developing sense of self. How this is done is outside the intent of this thesis.

Proposing improvements for occupational therapy practice is within the intent of this thesis. One area of improvement drawn from the research data is that children would benefit from assistance early on in their schooling careers when intervention can be seamlessly fitted into the multi layered classroom handwriting program.

Early intervention strategy

The remaining section of this chapter outlines the development and implementation of an early intervention strategy. This proposal of an early intervention program pulls together factors influencing the child and factors influenced by how the teachers orchestrate the task of learning to handwrite. At the child level, one finding from this study is that assistance for children with handwriting difficulties should occur early on in a child's career while handwriting is in the occupation stage and before they define handwriting as a negative work task. At the teacher level, the accommodating nature of new entrant teachers handwriting programs as described within this research and how these environments orchestrated by the teachers would support intervention which required minimal modifications are drawn together. These combined reasons highlight the benefit of early intervention for handwriting difficulties.

The suggestion of early intervention is not new. Many authors have demonstrated the benefit of early intervention for children with handwriting difficulties. (Graham, Harris & Fink, 2000; Graham & Harris, 2005; Jones & Christensen, 1999). One difficulty in applying the suggestion of early intervention for Aotearoa / New Zealand school children has been the marked diversity of skill demonstrated by the children within new entrant classrooms. This diversity of skill is intensified due to the children starting at differing times during the year as they turn five years of age. Awareness of children's diversity of skill needs to be included in the planning and implementation of an early intervention strategy.

For an early intervention strategy to be a credible suggestion the following issues therefore need consideration:

- Respect for children's individual learning styles within the identification process;

- The most appropriate and ecologically valid assessment tools;
- How to facilitate a referral system that connects a range of professionals together, including but not limited to Reading Recovery Specialists, 'Resource Teachers Learning and Behaviour Specialists' (RTLB's) and occupational therapists'.

RTLB's are funded by the Ministry of Education, to provide advice and guidance to teachers. In this role they can provide consultative support or direct intervention for a child, depending on what the needs are. Reading Recovery teachers also undergo specialist training, working with an identified child for a short block of intervention, in a one-on-one environment. They specifically target children around six years of age who are experiencing difficulty with literacy achievement (Fraser, Moltzen & Ryba, 2000).

The following discussion works through these three issues while considering the proposal of a possible early intervention strategy. This discussion is reflected against the information gained from this research and considers special education services and structures already in place within the Aotearoa / New Zealand school system.

Dependence on referrals

In Aotearoa / New Zealand some children are referred to the Ministry of Education Special Education Services and therefore school-based occupational therapists early within their school career through the Ongoing Reviewable Resource Scheme (ORRS) (Mitchell, 2000). However many other children with more subtle learning difficulties are assisted by occupational and physical therapists employed to work within Ministry of Education, Moderate Contract for Children with Physical Disabilities (MOE, 2008). The process of obtaining Moderate Contract services are based on referral (MOE, 2008). As noted in the international literature, referrals for handwriting difficulties are made usually when a child is around the ages of nine or ten years as this is commonly when an increase in writing expected from students occurs and handwriting difficulties are more obvious (Dennis & Swinth, 2001; Berninger & Graham, 1998). If this referral pattern is similar in Aotearoa / New Zealand context a shift of referral age would need to occur. For this shift in referral age to occur structures and screening tools which enable the early identification of handwriting difficulties are required.

The first step - Identification of need

The core of this strategy would be connecting the assessment and monitoring practices already occurring within schools and the Ministry of Education, Special Education systems to the suggestion of early intervention for handwriting difficulties. One of the structures already in place is a body of tests that are traditionally done at a child's sixth birthday. These tests conducted by a teacher are often referred to as the 'six year net' or Observation Survey (Clay, 1993). This tool created by Clay is used to assess children's progress in literacy in their first years at school. The Observation Survey identifies achievement across a broad range of literacy sub-skills using Stanine scores. These skills demonstrate a child's developing understanding of the written word. As well as three running records of easy, instructional and hard texts, the assessment tasks are letter knowledge, concepts about print, word test (reading words out of context) reading, writing words, and hearing sounds in words.

The Observation Survey (Clay, 1993) is useful in identifying children with handwriting difficulties due to the tasks of written vocabulary and letter knowledge as well as the sub-test of hearing sounds in words, as this involves writing down the letters which a child hears during dictation. Theoretically, a child could, and does receive services by a Reading Recovery Specialist even if their reading skills were appropriate if they demonstrated difficulty in a sub-skill that was more written based, such as written vocabulary. Uneven scores on the Observational Survey could assist in identifying a child who is developing letter knowledge in an uneven pattern, therefore identifying children who possibly are having difficulty with expressing their learning through pencil skills. Further analysis may identify specific motor control challenges, spelling difficulties or combined spelling and motor control issues. Graham and Harris (2005) have recommended early intervention for children with literacy difficulties in any of these areas, with the further acknowledgement that children with combined motor and spelling difficulties require more support to overcome their challenges.

In contrast, Marr (2005) noted that handwriting challenges are not necessarily consistent across years of schooling and that some children do spontaneously improve their handwriting. Marr suggests that for many children, being exposed to the opportunity of handwriting instruction over the course of their early school career is

enough to enable students to master the skill of handwriting to a level similar to their peers. This finding discredits the suggestion of an early intervention strategy.

However, as noted by Graham and Harris (2005) children with spelling and handwriting difficulties are more challenged in improving their handwriting than children with just handwriting difficulties and therefore, present with a case more complex than just lack of opportunity. An early intervention strategy would therefore need to target the children identified by Graham and Harris (2005) and not the group defined by Marr (2005). The ability to do this is facilitated by using the information gathered by the Observation Survey and through the application of Aotearoa / New Zealand research on emergent literacy.

Aotearoa / New Zealand research on emergent literacy

In Aotearoa / New Zealand young children generally have the same exposure as their peers to the specific teaching of letter knowledge. McNaughton, Phillips and MacDonald (2003) highlighted that children attending lower decile schools acquired the same level of alphabet knowledge as their peers in schools of higher decile rating. Possible reasons for this can be connected to Clay (2001) who remarks that in Aotearoa / New Zealand specific teaching and mastery of the alphabet before attending school is not valued and that on the whole most caregivers / parents of children and preschool environments see this as a task that is taught in the first year of schooling.

Therefore it would seem that although children may come into school with a wide variety of life experience around 'concepts of print' (Clay, 2001), this diversity of ability does not affect their ability to learn the specific skill of writing the alphabet. Consequently, using a child's ability to write the alphabet, or copy text as a measure to differentiate those at risk of handwriting difficulties and those who are progressing as expected does not provide meaningful data, as these skills are usually acquired by most children after a year of schooling. This highlights a possible reason why the Developmental Test of Visual Motor Integration (VMI) (Berry, 1997) and the ETCH (Amundson, 1995) assessment tools are not reliable measures to predict handwriting dysfunction, as they assess an aspect that can be remediated by opportunity.

Furthermore in McNaughton et al. (2003) study it also demonstrated that the children attending the higher decile schools obtained better scores on written vocabulary than peers attending lower decile rated schools. Extending on this thought, it is possible that the children's decrease written vocabulary scores demonstrated a mis-match between the child's learning style and the teachers way of teaching letter knowledge, or in Clay's terms (1991) the child was having difficulty developing and organizing 'letter knowledge' learnt in the classroom onto their literacy networks, in particular their ability to use this knowledge to be a self extending learner. A child ability to be a self extending learner would be demonstrated in their ability to create text and written vocabulary (spelling). Using the written vocabulary scores of the Observation Survey (Clay, 1993) are more likely to highlight the children whose handwriting opportunity in itself will not be enough to help them overcome their handwriting challenges, as their handwriting challenges are related back to incomplete development of literacy networks. Therefore children with decreased written vocabulary scores as identified on the Observation Survey (1993) would fit into Graham and Harris identified group that would most benefit from early intervention. Consequently combining Marr (2005) and Graham and Harris (2005) American based research to the findings and theories based in the context of Aotearoa / New Zealand (McNaughton, et al. 2003; Clay, 2001) reinforces that learning to handwrite in Aotearoa / New Zealand needs to be considered as more than writing the alphabet.

Graham and Harris's (2005) finding along with McNaughton et al. (2003) support using the sub test of written vocabulary from the Observation Survey (Clay) as a indicator of children with early writing challenges as this highlights a possible combined handwriting / spelling difficulty, over handwriting difficulties correlated with decreased opportunity and experience. The Observational Survey (Clay, 1993) is well established in most Aotearoa / New Zealand schools. However its use as a screening tool for potential occupational therapy intervention is not well established, hence highlighting an area of future research.

Future research

The first step before new research, programs or intentions are developed is the need to review data already collected by systems embedded within Aotearoa / New Zealand primary school culture. Information needs to be accessed and considered against the

proposed areas of new research and the findings of this thesis. Therefore before the suggestion of an early intervention strategy could be implemented, future research into past handwriting referral patterns for Reading Recovery, RTLB's and occupational therapy intervention is required. Determining the average age of a child referred to occupational therapy in Aotearoa / New Zealand for handwriting difficulties would initially be the main focus.

Two specific international research papers, one from England, (Terer-Perze, & Hynes, 2005) and one from America (Berninger & Amtmann, 2004) highlight the age children with handwriting difficulties are referred. This along with the trend of handwriting research usually being conducted in the third and fourth grade (Dennis & Swinth, 2001; Case-Smith, 2002; Koziatek & Powell, 2003) lead to the assumption that the common age for referral is around nine years of age. Whether this trend also occurs in Aotearoa / New Zealand needs to be confirmed. This data could then be compared with the children's historic Observation Survey scores. Combining this information would enable researchers to identify a link between early learning scores as identified by the Observations Survey and the later need for referral to occupational therapy.

This information would be enriched by becoming aware of the referral patterns of children with handwriting difficulties to RTLB's, as this group of professional also address handwriting difficulties. The information gained from accessing RTLB referral data would assist in highlighting if students are receiving assistance early on in their school career for handwriting but from a different professional group. Although the age of referral to Reading Recovery teachers is already identified as occurring during the child's sixth year of age, patterns of referral for writing vocabulary difficulties separate from reading difficulties is not as well known.

The combined information gathered from students Observation Surveys and referral patterns of Reading Recovery intervention, RTLB's and occupational therapy referrals could then go under further analyses. This combined information would give insight into when children are referred, who they are referred to and which professional they are referred to at differing stages within their school career. This information could be used to test the hypothesis suggested in identifying the sub groups of children with differing causes of handwriting difficulties.

The benefit of this type of research would be to help identify those children who require assistance from all three professionals. This may be required as some children require intermittent support throughout their learning career. However this support may be isolated to children with just spelling difficulties, combined spelling and handwriting difficulties, or just handwriting difficulties. Analysis of this data would help to identify which children are most at risk and in turn would provide evidence for the need of a close monitoring system and the projected need for support arranged. However this also may highlight an area in which service delivery can be streamlined.

Another area of future research would be the retrospective study of past occupational therapy interventions looking at whether handwriting intervention had a visual motor integration focus or a 'knowledge of letters' focus. A connection from this finding could then be reflected against the children's observation survey scores.

Once this ground work research had been conducted a longitudinal study examining the outcomes of using the Observation Survey as a screening tool for referral to an early intervention program would be warranted. This would be followed up by the implementation of an early intervention program which reflected motor learning theory and Motor Skills Acquisitional Frame of Reference (Kaplan & Bedell, 1999) for children with identified handwriting difficulties within their first few years of schooling within Aotearoa / New Zealand by occupational therapists.

Other suggestions for ongoing research have been highlighted within this chapter. The specific relationship between letter formation, speed and pencil grip and letter formation, visual feedback, pencil grip and skill acquisition have also been highlighted. Each area of proposed research opens up another layer of questions which will need answering.

Marr (2005) and McNaughton et al. (2003) and the findings of this thesis highlight the possible impact differing expectations and influences afforded to children in the differing class environments has on their ability to master the skill of handwriting. These combined findings stress the need for a longitudinal study which documents the experiences of learning to handwrite provided to the children in contrasting class environments and how this affects their skill acquisition in handwriting. A study of this nature would need to involve in-class observations and children's writing samples over

an extended period of time. Research of this nature would be enriched if it involved the collaborative efforts of occupational therapists and teachers.

It is important for occupational therapists to be involved in classroom research as it would enable the opportunity to learn more about the teachers way of doing things. This in turn would increase the professions awareness of the complexity of this important complex task within the occupation of education. Therapists using an ‘occupational lens’ would bring another layer of analysis that would help unravel why the task of handwriting is so potent in relation to a child’s developing sense of self.

Occupational therapists come from a differing professional culture than teachers and although therapists and teachers share common ground, the culture shock of being in a classroom may help identify practices that teachers sharing the same professional socialization and culture could not identify themselves as they are so deeply embedded within it. Lastly ecologically shared research must benefit ecologically based practice.

Limitations

This thesis has many limitations; the first is directly connected to my lack of knowledge as a researcher and of literacy development. I am qualified as an occupational therapist, I have a particular interest in literacy development and have used this interest as the focus of the majority of my postgraduate learning. However I have not engaged in any formal qualification in the area of literacy learning and therefore am aware that I am still a novice in understanding this very complex task. Furthermore I am not a teacher and therefore it is possible that I have misunderstood the experiences of a teacher teaching new entrant children handwriting. In addition to this awareness, this is my first attempt at research and therefore I am also a novice in this area as well. In an effort to insure against these two weaknesses I was supported by two supervisors, one with an education base with expertise in literacy development and another with a strong grounding in school based occupational therapy. Both of these supervisors were experienced in supporting students new to the research process as well as being experienced researchers themselves. Consequently at each level of the research process I have used supervision to minimize the affect of being a novice on the outcome of this research.

Secondly, a small sample of participants were recruited. This small sample might have affected the results of this thesis, however value should still be placed in the results as the voice of the teacher's are presented in a transparent way. Although a small sample was utilised, wide variety of teaching practice was represented. From no formal handwriting sessions, to using a commercial handwriting program, to self designed programs, therefore offering insight into the broad spectrum of differing ways teachers teach handwriting. Furthermore, Stake (1995) suggests using collective case studies helps strengthen the reliability of the findings, as each participant is in herself a replica of the study.

The interviews were all conducted within one geographical area and within a narrow band of schools with a decile rating of 5 to 8; these two factors may have also affected the outcome of the research. This was addressed by sharing this information with the reader and explaining why this boundary was placed on the inclusion criteria. Even with this knowledge it would still be beneficial for an additional replica study to be conducted over differing geographical regions and a wider range of decile rated schools.

This case study drew from literature to inform and assist with creation of themes. The literature chosen was gathered from occupational therapy, education and psychology to guide this process. Possibly the literature chosen could have been more broad, especially looking at literacy theories from overseas. Literacy theories were mostly limited to the work of Clay (1993, 1998, 2001). This may have affected how I interpreted the teachers orchestration of the task of teaching handwriting and how I analysed international handwriting research. Lastly, the interpretation of the literature was shaped by the researchers own life context and experiences and therefore could also be considered a possible limitation. However input from supervisors whose life context and experiences are different than the researcher hopefully assisted in decreasing this affect.

Conclusion

This research set out to answer the question; “How do new entrant teachers teach handwriting to year one students”. In the process of answering this question, the emphases between participation (learning to handwrite) and the experience of handwriting (sociocultural messages embedded within the task co-constructed by the teacher and students) within the classroom context have been highlighted. Asking the teachers’ “How do new entrant teachers teach handwriting to year one students” was incredibly valuable. The teachers in this research taught handwriting through a process of co-construction taking into consideration the skills and interests of the children. By doing this the teachers orchestrated multi layered programs to help facilitate the children from an occupation stage, cyclic process, to a tool stage of handwriting.

The teachers understanding of literacy and how children learn to be literate was deeply ingrained within their practices. Teachers view handwriting as more than a visual motor task, even more than ‘language by hand’. The teachers in this study used handwriting to teach literacy, therefore handwriting had a role both in encoding written language but also in decoding it. It was during this learning of how to encode and decode that teachers placed more value on the task of handwriting and gave it occupational status. In contrast when automatic mastery of handwriting occurred it was demoted to tool status. These differing stages of handwriting, as voiced by the teachers, directly affect how the task of handwriting is conducted and in turn affects how international handwriting research is applied to Aotearoa / New Zealand context.

These findings were further developed into the suggestion that Aotearoa / New Zealand students would benefit from early intervention for handwriting difficulties. In particular, intervention should occur early on in a child’s career while handwriting is in the ‘occupation’ stage. This time frame has been suggested as it is when children are laying down their literacy networks, thus helping them with the larger skill of becoming literate. Furthermore the ‘work’ task of handwriting would not have yet been polluted with psychological criteria of work being hard and tedious. Using this window lessens the possible harm to a child’s developing sense of self and life opportunities afforded to them in the future.

Many benefits of early intervention and the implications of intervening at the 'occupations' stage of handwriting were highlighted, in particular, alignment with service delivery within classrooms. Shared values around 'learning through doing' and forecasting future roles could enrich therapist and teacher relationships, providing a way forward towards the implementation of more effective ecologically based service. A closer working relationship would support the proposal of an early intervention handwriting strategy.

By acknowledging the sociocultural and the physical aspects of how teachers teach handwriting, the experience of learning to handwrite has been uncovered. This highlights that it is important to ask 'how' as well as 'why' questions when talking with teachers. The 'why' questions gave insight into the values which in turn shape teachers expectations. The teachers expectations directly affected how the task of learning to handwrite was orchestrated in that particular classroom. Understanding why the teachers did what they did was crystallized when reflected against handwriting literature and occupational therapy literature. Occupational therapists and teachers do share common values of learning through doing and forecasting future roles. Both professions also share the same legitimate tool of the teaching and learning process, however articulating our connection to a child's developing sense of self ensures we keep occupational performance central to our intervention suggestions.

Teachers will always have a better understanding of literacy than therapists. This is expected as this is their professional role. Teachers are the main conductors of the orchestration of handwriting; this is their professional responsibility. Our professional responsibility is to collaboratively work with teachers, drawing on our understanding of occupation and use this knowledge in partnership with the teacher's knowledge of their class environment, expectations and development of literacy to ensure that children are co-constructing, participating and gaining experiences which are leading to a healthy development of sense of self and a future full of opportunities.

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Appendices

Appendix A: Ethic's Approval



ETHICS COMMITTEE
Private Bag 1910, Dunedin, New Zealand
Telephone: +64 3 479 6180
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Facsimile: +64 3 471 6869
Email: EthicsAdmin@tekoatago.ac.nz
Website: www.otagopolytechnic.ac.nz

Rita Robinson
Student, Master of Occupational Therapy
School of Occupational Therapy
Otago Polytechnic
Private Bag 1910
DUNEDIN

13 September 2006

Dear Rita

ETHICS 334 – Exploring the 'context of doing' facilitated by New Zealand teachers as they teach handwriting to year one students. More than writing the alphabet – exploring handwriting.

Thank you for your letter and modified proposal. We believe you have covered all the information we require to see that you are enabling students to participate in some research experiences as part of a teaching learning process. This letter gives you permission to proceed.

I would remind you that at the conclusion of your research you should send a brief report with findings/conclusions to the Ethics Committee. We wish you every success with this particular research project.

Yours sincerely



Chris Bain
Administrator
Ethics Committee

cc J Herkt
Merolee Penman

Appendix B: Directory Of Aotearoa / New Zealand Schools

The screenshot shows a Mozilla Firefox browser window displaying the TKI Schools website. The browser's address bar shows the URL <http://www.tki.org.nz/e/schools/>. The website's navigation menu includes Home, News, About, Communities, Search, Schools, Interact, Gateway, and Sitemap/Help. The main heading is "Schools' Links". Below this, there are fields for Username and Password, with Login and Register buttons. The language options are ENGLISH and MĀORI, and the site is identified as TE KETE IPURANGI THE ONLINE LEARNING CENTRE.

There are five ways to search for schools:

- 1. Simple search**
School name:
Begins with or Contains
- 2. Advanced search**
School name:
Type of institution:
Authority:
Gender:
Boarding: yes no both
Address 1:
Address 2:
- 3. School zones**
[School enrolment zone information](#)
- 4. Graphical search**
Choose a region:
[Northland](#)
[Auckland](#)
[Waikato](#)
[Bay of Plenty](#)
[Gisborne](#)
[Hawkes Bay](#)
[Manawatu-](#)
[Wairarapa](#)
[Taranaki](#)
[Wellington](#)
[Marlborough](#)

On the right side, there is a sidebar with the following links:

- TKI links
- General Feedback
- TKI Home
- TKI Help

The Windows taskbar at the bottom shows the Start button, several icons, and the system tray with the time 12:36 p.m.

Appendix C: Information Sheet

Letter to the Principal and Board of Trustees

Date-----

Dear-----

REF: More than writing the alphabet – exploring handwriting.

My name is Rita Robinson. I am a Master of Occupational Therapy student carrying out the above named research project at the School of Occupational Therapy, Otago Polytechnic.

As part of the data collection process, I wish to interview teachers working in new entrant classrooms. I am therefore requesting your permission for me to undertake the data gathering process in your school. Should you and your Board agree, I will make contact with the teachers that you nominate and invite them to participate in face to face interviews. Enclosed is a research information sheet with relevant information about the study and a letter from my primary supervisor confirming my studies with the school. Feel free to contact me or my supervisors for any additional information (see information sheet for contact details). If you grant permission, could you please forward on the information pack to any year one teachers who are employed within your school.

Thank you for your cooperation

Yours sincerely

Rita Robinson

Appendix D: Information Pack

Invitation letter to potential participants

Date-----

Mrs/Mr-----

REF: More than writing the alphabet – exploring handwriting.

My name is Rita Robinson. I am a Master of Occupational Therapy student at the School of Occupational Therapy, Otago Polytechnic. I am currently undertaking the above titled thesis project. As part of the data collection process I wish to interview teachers who work in new entrance classrooms. Enclosed is a research information pack that has all the relevant information about the study and how you can participate.

I am therefore inviting you to contribute in the data collection process through face to face interviews. If you are interested in participating, please complete and send back to me the enclosed consent form and the expression of interest sheet in the prepaid self addressed envelope. Or if it is more convenient for you phone me on (07) 889 6485 to inform me of your interest, and arrange a possible interview time. If your interest is communicated through the post I will then contact you by telephone to arrange a date and time of the interview. If you have any further questions about the research please contact me or my supervisors (see the information sheet for contact details).

Thank you for considering participating in this study.

Yours sincerely

Rita Robinson

Information Pack

Project title

More than writing the alphabet – exploring handwriting.

General Introduction

This research study seeks to gain a better understanding of how teachers teach handwriting to students in their first year of formal schooling.

Occupational therapists need to understand how handwriting is taught in the ‘new entrant’ classroom as handwriting is one of the lead reasons for referral to school based occupational therapy services (Tait, 1998 p.9 cited in Terrer-Perez & Hynes, 2005). It is important for the occupational therapists to understand how teachers teach handwriting, in order to ensure that when we enter and work in the classroom that what we recommend and do is ‘in line’ with how teachers teach handwriting. In order to work in the classroom, collaborate and to share ideas, our profession needs to understand how handwriting is taught.

The goal of this research is to gain a greater understanding of the learning environment both human and non-human. The human aspect explored within this inquiry is the teacher, this would include their choices around how they teach handwriting, the type of feedback they provide, the structure and expectations of their lessons, while the non-human environment aspect includes the resources (tables, pencils, books) and educational policies which influence and reflect the teacher’s perspective in teaching handwriting.

What is the aim of the project?

The aims are to

- To describe teachers’ reflections about how they teach handwriting and what has influenced why they do it in their particular way.
- To gain an understanding of the expectations and experiences facilitated by teachers that impact on the occupation of handwriting.
- To apply this learning to assist occupational therapy practice in the area of handwriting.

How will potential participants be identified and accessed?

Names, contact addresses and telephone numbers of potential schools from which teacher participants will be drawn has been obtained from the MOE web site. Teacher participants are being sourced through their school principal. Initial contact in the first instance is through the principal to ensure that the school is supportive of teaching staff participating in the study. With principal and Board of Trustee approval, the information pack will be passed onto the 'new entrant' teacher or teachers who may be interested in participating.

What type of participants are being sought?

Teachers who teach in new entrant classrooms, who have lived and worked in Aotearoa / New Zealand for more than one year.

What will my participation involve?

Should you agree to take part in this project, meet the selection criteria outlined above and are selected, you will be asked to sign a consent form that shows that you understand the study and wish to participate. You will then be asked to participate in a confidential, one to one, semi-structured interview in your classroom.

There will be a range of questions to guide the interview (refer to the attached priming questions sheet), but it is impossible to say exactly what questions will be asked before hand as some questions will arise from the discussion. You may also like to demonstrate or share some of the strategies you use. The interview will take 60-90 minutes and will be audio taped, transcribed and analysed by the researcher with the help of her two supervisors. You may decline to answer a question if it makes you feel uncomfortable or for any reason. After the tape is transcribed, you will be asked to read a summary of your interview, returning it to me with any corrections, or amendments you wish to have made.

How will confidentiality and/or anonymity be protected? I will ensure that all information shared by participants will be kept confidential. To increase anonymity and decrease potential risk of identification of individuals, the following steps will be taken:

- Pseudonyms will replace participants` real names as well as their schools name throughout all written and reported documentation.

- All raw data with personal information about the participants will be stored securely during the study and destroyed at the end of the study.
- No-one other than the myself and my supervisors will have access to the participant`s information.
- Please don`t identify of your students, colleagues or other professionals by their name. If you use real names of people or places by accident, these will be replaced by pseudonyms during the transcribing process and deleted from the respective tape.

However, due to the nature of a small community of new entrant teachers there is a potential risk that you could be identified. Every effort will be made to maintain your anonymity, e.g. use of pseudonyms.

What data or information will be collected and how will it be used? Each teacher will be invited to participate in an open ended, face to face, audio-taped interview held in their classroom, focused on how they teach new entrant children handwriting. It is anticipated that the interviews will take between 60 and 90 minutes and be held after the students have gone home at the end of the school day. Teachers will be encouraged to freely share their views on how and why they teach handwriting the way they do. Brief notes may be taken during the interviews. Resources and physical props will be captured using digital photos. No samples of children`s work will be taken just generic resources such as alphabet cards.

The information from the project will be used in the following ways:

- published as a thesis, which will be available in the Bill Robertson Library
- teaching purposes at the Otago Polytechnic, School of Occupational Therapy published in the form of a journal article
- general presentations at conferences
- presentations as part of workshops, seminars, forums and staff training

Results of this project may be published but any data included will in no way be linked to any specific participant without prior consent.

You may request a copy of the results of the project.

By ticking the right-hand box in the consent form

Data storage

The data collected will be securely stored in such a way that only those mentioned above will have access to it. At the end of the project any personal information recorded on the raw data will be destroyed. However any raw data on which the results are based will be retained (with all personal information removed) in secure storage for a period of five years, after which it will be destroyed .

Can participants change their minds and withdraw from the project?

You can decline to participate without any disadvantage to yourself of any kind. If you choose to participate, you may withdraw from the project at any time during data collection, without giving reasons for your withdrawal, however you cannot withdraw any information that has been recorded once data analysis begins.

You can also refuse to answer any particular question, and ask for the audio/video to be turned off at any stage.

What if participants have any questions?

If you have any questions about the project, either now or in the future, please feel free to contact

either: Rita Robinson 07) 8896485

or Merrolee Pennman 03) 4773014

or Linda Wilson 03) 4773014

Consent Form

Project title

More than writing the alphabet – exploring handwriting.

I have read the information sheet concerning this project and understand what it is about. All my questions have been answered to my satisfaction. I understand that I am free to request further information at any stage.

I know that:

- My participation in the project is entirely voluntary, and that this signed consent form will provide evidence of agreed participation.
- The study will involve face to face interview in my own classroom. The interview will take 60-90 minutes and that the specific date and time will be negotiated between me and the researcher. I agree to the interview being audio-taped and notes to be taken.
- With my permission, resources used within the teaching of handwriting may be documented using a digital camera. I understand that these pictures will be used as part of the analysis, and may also be reproduced in the thesis, in a subsequent journal article or articles, or used in conference presentations or seminars.
- I am free to withdraw up to the point of data analysis, at this point, it would be difficult to separate specific information from the body of data. Withdrawal before this point can occur without giving reasons and without any disadvantage.
- The data (including video tapes or audio tapes) will be destroyed at the conclusion of the project but any raw data on which the results of the project depend will be retained in secure storage for five years after which it will be destroyed. If it is to be kept longer than five years my permission will be sought.
- The results of the project may be published or used at a presentation in an academic conference but my anonymity / confidentiality will be preserved.

I agree to take part in this project under the conditions set out in the Information Sheet.

I would like a summary of the research findings

I consent to any digital images being used in presentations and/or written publications.

.....
(name of participant)

.....
(signature of participant) (date)

.....
(signature of researcher) (date)

This project has been reviewed and approved by the Otago Polytechnic Ethics Committee.

Expression of Interest Form

PROJECT TITLE : More than writing the alphabet – exploring handwriting.

Please self identify to check whether you meet the selection criteria outlined below;

- Yes, I am a registered primary school teacher working with new entrance students in a primary school with the decile rating of 5 to 8.
- Yes I am willing to have the interview conducted in my classroom and am willing to show the teaching resources I use in my teaching of handwriting.

If applicable:

- Yes I am a new immigrant to Aotearoa / New Zealand having completed my teaching training overseas, but I have worked for more than one year as a teacher in Aotearoa / New Zealand school(s).

If you meet the above criteria and are willing to participate, please fill in the attached few questions and return the form to me in the self addressed envelope

1) What is your name ?-----

2) School in which you work -----

3)Please provide your full contact details -----

-----Thank
you for your willingness to participate in this project and taking the time to fill in the
questionnaire.

Rita Robinson

Priming questions and interview guide.

PROJECT TITLE

More than writing the alphabet – exploring handwriting.

Question Guide

Participants will be given the following instructions when initially asked to participate in the research. This will assist in them gaining a better understanding of their contribution to my inquiry, as well as prime their thinking for the up coming interview.

Examples of questions that will be asked on the interview

Show and tell me how you teach handwriting to the children in your classroom?

(This question will hopefully provide an opportunity for you the teacher to show me your resources, as well as communicate your definition or description of the handwriting process.)

At what point during the day do you usually concentrate on the specific task of teaching handwriting? What other classroom activities cross over into teaching this skill?

(This question will hopefully assist me to understand how handwriting fits within the context of the whole school day.)

If a child struggles to learn to write - what other things might you do?

(This question will help me gain an understanding of the differing techniques and teaching strategies you as a teacher may call on.)

Can you tell me about what things/events or policies which have influenced how you teach handwriting in the classroom? (For example, are their school or syndicate policies, ideas from other staff members, attendance at workshops or courses)

In terms of handwriting – what skills do you hope that a child will have when they come to school – what sort of handwriting skills should the average child have when they leave your class at the end of the year.

Close

At the close of the interview you will have the opportunity to share or add anything else you feel needs to be mentioned. Once this is completed I will arrange a time for you to check the summary of findings, this is to ensure that I heard and recorded your information correctly.

Appendix E: Interview Protocol and priming sheet for teachers

Interview Protocol.

Describe the process for the interview, draw attention to the priming sheet and the list of priming questions.

Discuss about consent form, anonymity, member checking.

Discuss why I am also taking notes, and gain permission to tape the interview.

Discuss that I may ask for more information, either by asking why or asking them to tell me more about that. Inform them that they can stop at any time without justifying why and they can also not answer any question, that is fine too.

Discuss that it is OK to pause, think and have periods of silence.

Offer to answer any queries.

Turn tape on

Start interview with first question from priming questions (Appendix D).

Priming Sheet For Teacher Interviews

Location and time	Tools for instruction of handwriting	Strategies / Instructions	Sequence of letters or words taught	Resources /	Feedback	Tools children use
<p>On mat in front of teaching white board.</p> <p>On mat looking at large white board</p> <p>On mat looking at other resource</p> <p>General sitting on chairs at tables</p> <p>Clustered groups chairs/ mat</p> <p>Time of hwt session 9.30, 10.00, 10.30</p> <p>Usual length of instruction period and hwt session. Eg.10 minutes, 15 minutes</p> <p>Number of direct hwt session taught a week.</p>	<p>Teachers tools</p> <p>White board and markers.</p> <p>Tapes or rhymes</p> <p>Handwritten examples in books</p> <p>Worksheet examples pasted in books</p>	<p>Set scripts of how to shape letters. Eg. make a magic c and then up like a helicopter down like a fireman, d.</p> <p>Scripts which match the shape and sound together eg. stroke down Bouncing Ben's ears and pat him up over his face, tickle him under his chin, b.</p> <p>Demonstration/ modeling. How many times is demonstration provided, occurs on whiteboard, in writing books.</p> <p>Tracing</p> <p>Multisensory experience, sand, shaving cream, air writing</p> <p>Complete work independently or supervised</p>	<p>Letters starting with c movement.</p> <p>Letters with down stick movements.</p> <p>Tail letters</p> <p>Vowels</p> <p>Letters of name</p> <p>High frequency words</p> <p>How long would it take you to cycle through teaching all the letters of the alphabet?</p> <p>Do you specifically teach all the letters of the alphabet?</p>	<p>Teaching manuals</p> <p>Casey the caterpillar</p> <p>Letter land</p> <p>Jolly Phonics</p> <p>Worksheets</p> <p>Crafts / coloring in</p>	<p>When? during, or at the end of completed work. Verbal or written.</p> <p>Individual or shared with whole class.</p> <p>What kind of things does your feedback include e.g. 'good effort', 'tidy work', 'cool starting at the top'.</p>	<p>Pencils HB</p> <p>Pens</p> <p>Felts</p> <p>Own or class supply</p> <p>Pencil grips</p> <p>Work books</p> <p>Lined or no lines</p> <p>Line width,</p> <p>Worksheets</p>

Appendix F: Written Text Created from Interviews

Direct quotes

I have a very holistic approach to teaching handwriting. It is part of a much bigger picture that does not just look at the physical aspect of holding a pencil and learning how to record specific shapes. Things I keep in mind; make it fun, make it competitive / goal oriented, rewarded. You have to get the kids excited and motivated. My program is loosely based on the Letterland approach, however I have modified it to suit my style and the needs of the children in my class. I use the Letterland idea about a story and character for each letter. I do not call the letter's by their alphabet name they are always referred to as their character name, for example Munching Mike.

Lesson descriptions

In my class I work on learning about letters, their sound, shape, and names from 9am to 10 am. I hold the children on the mat for pretty much most of that time, with the odd movement break to help keep them focused. I have three groups of differing ability, the youngest group, focus on a single letter and their sounds, the middle group logical blends, the third group difficult blends. Writing activities are graded depending on which group a child is currently working in. For example, a child from the young group will learn and write about Munching Mike (m). When a child from the harder group will learn and write about ph. All the children hear and experience all the instructions and activities for each group, thus providing revision for the older ones and exposure for the younger children. I feel this exposure is a great motivator as the younger children want to be able to do what the older children are doing. I use peer praise and the acknowledgement of moving towards being a big kid as a motivator quite a lot in my class.

Teachers Musings

If they can see the overall purpose for requiring a letter to be drawn and have a purpose for physically committing themselves – goal making – they are much more likely to have the self motivation to put pen to paper.

I tell a story about each letter, as the Letterland approach encourages. This provides the children something to hook their learning on, I feel this is important.

The worksheets then go in their Letterland book to be taken home, hopefully to be revised by mum and dad. This helps the parents know where their child is up to. The parents have to know where you are coming from, otherwise they will teach something different or not buy into what the child is talking about. In the front of the folder I have information about Letterland, and the curriculum formation guide. I think it is disappointing that the capitals are shown first on the formation guide.

Appendix G: Modified Interview Text

Modified text in highlighted yellow, the replaced text is highlighted green.

Interview Participant C

Writing (handwriting) and reading is so intertwined, you can't really separate the two things, and I do not think that you should. The children need to think about the letter as a whole it's sound, it's shape, it's form and it's name. When I was a younger teacher I probably saw everything more separately. But now I see that it makes sense to the children to learn it together, not cutting it up into separate bits, it is important for the children to recognize all the facets of the letter together.

I talk about which family the letter belongs to and how it is similar to other letters we have practiced so far. I have self made cards which present the families and how to form them. These cards highlight the similarities of a letter to others. I show the children these cards, with me modeling how to form the letter. I have made up little sayings or songs to help the children remember how to form the letters. The songs use formation words such as along and up. I use a medium size white board to demonstrate how the letter is formed. The white board mimics the children page by having a left margin line, and writing lines marked onto it. Starting points and direction are very important to ensure correct formation. I teach upper and lower case letters at the same time, two line for upper case, two line for lower case (and then a mixed line with both). We practice the letter in the air with finger writing. Sometimes I exaggerate what can go wrong when writing letters for example lower case P's that sit up on the line, but mostly I just show them the correct way.

I use to teach lower case first, especially since so many children came in writing in block letters, however I have changed my view on this. To teach the wholeness of the letter, to make it coherent, to learn the letter name, the letter sound, and everything, they may as well learn everything together. The children seem to understand or realize the difference, as they have lines of lower case and lines of uppercase to help them separate the two. They see both upper case and lower case in the PM phonic books (reader) and in the texts around the room so they are exposed to it anyway.

The handwriting work usually provides a model for them to either copy over or copy from, it is not until story writing that they get to practice pulling the letters from their memory. Story writing flows on from handwriting, to me this is logical as they have just practiced writing this letter so now they get to incorporate it into their story writing. This is part of the reason why I do the two activities leading on from each other, seeing this connection is important. Otherwise you get children who do beautiful handwriting in their handwriting book, but poor writing in their story books. **There is no transfer.** The youngest children tell me their story I then write their story for them to copy over, leaving some empty blanks for them to independently source and write some of the small high usage words like I or to. Although the children do not have lines in their first story book I draw horizontal blanks or lines for them to fit their word on. I find that this helps them with spacing. I used to struggle to get young kids to do finger spaces, then I realised it was just asking them to do too many things at once. Drawing the blanks for them to write their words on has overcome this problem. The older kids have books with lines. For them the focus is about creating a sentence, finding or spelling that word correctly to communicate their message, while the younger kids although also doing this are still mostly focusing on the formation of the message they have dictated. Story writing occurs daily.

Appendix H: Coded Interview Text

Interview Participant C

Code

Wholeness of letters: Strategies: Meaning & Motivation: Risk Taking and Independence
Connection with community

The work is graded to the differing needs and abilities of the children. Most children start with writing their name on the first page of their book. If they have trouble with this skill they complete six days of practicing their name by writing over it on photocopied page, this page has the starting points exaggerated so the children hopefully start in the correct place. The children are allow to choose felt marker to write over these copies there is eight names on each sheet so they have quite a few practices after six sheets of this. The ability to choose their own colours seems to be enough of a motivation to complete this repetitious work. Not all children need this task, some however do, it all depends on the experiences they have had before coming to school. Some children can write their name however it is more like a drawing which lacks flow than actual writing. Teaching the flow of writing is important. Others come into school writing their name in capital letters, both of these early writing experiences are hard habits to change. In some ways I prefer children to not come in with the ability to print, than to come in with incorrect habits.

I use to teach lower case first, especially since so may children came in writing in block letters, however I have changes my view on this. To teach the wholeness of the letter, to make it coherent, to learn the letter name, the letter sound, and everything, they may as well learn everything together. The children seem to understand or realize the difference, as they have lines of lower case and lines of uppercase to help them separate the two. They see both upper case and lower case in the PM phonic books and in the texts around the room so they are exposed to it anyway.

The youngest children write on 1G2 books these books have 14mm lines. I have handwritten models prewritten in their books for them to copy over with a few spaces for them to try and complete the letter independently. As they progress I provide less copying models and more free spaces for them to form the letter independently. It

usually takes a child about four months to work through this book, they then progress onto the next book. This book is slightly different being a JWBK book with 14mm lines and 7mm half lines. The oldest children who are almost six work from worksheet from a commercially bought book, I have chosen this resource it has a sentence for them to copy, however on the third day of handwriting they progress onto copying words from the dictionary that start with the days letter. The children need a lot of repetition to solidly learn the wholeness of the letter so it is important to provide specific instruction alongside change and novelty to capture the kids interest. This is possibly why I only do handwriting for three out of the five days as I think they would get a bit bored if I did it five days in a row. The promotion from one book to the next is a big deal to the kids. They often bring their parents in to show off their new book. Highlighting how they are moving towards being more grown up also seems to be a great motivator for kids at this stage.

The handwriting work usually provides a model for them to either copy over or copy from, it is not until story writing that they get to practice pulling the letters from their memory. Story writing flows on from handwriting, to me this is logical as they have just practiced writing this letter so now they get to incorporate it into their story writing. This is part of the reason why I do the two activities leading on from each other, seeing this connection is important. Otherwise you get children who do beautiful handwriting in their handwriting book, but poor writing in their story books. There is no transfer. The youngest children tell me their story I then write their story for them to copy over, leaving some empty blanks for them to independently source and write some of the small high usage words like I or to. Although the children do not have lines in their first story book I draw horizontal blanks or lines for them to fit their word on. I find that this helps them with spacing. I used to struggle to get young kids to do finger spaces, then I realised it was just asking them to do too many things at once. Drawing the blanks for them to write their words on has overcome this problem. The older kids have books with lines. For them the focus is about creating a sentence, finding or spelling that word correctly to communicate their message, while the younger kids although also doing this are still mostly focusing on the formation of the message they have dictated. Story writing occurs daily.

When children first come to school I send home a letter in the homework book explaining about how I teach the letters, about the letter families, as well as why we use Finger Phonics.

Appendix I: Study Notes

It needs to be noted that these are study notes, they are not complete, they are presented in differing ways. They do however give some insight into the process used to connect the teachers quotes with the literature sourced and the researcher own life experience.

Clay, M., (2001) *Change over time.* Study Notes

“When children are clearly getting left behind by their faster- learning classmates it is very important to work with reading and writing together”. p 11

This makes me think that it would also work in the reversed, if a child is having trouble with writing / handwriting , working as a whole may also be of more benefit than working on separate skills.

“Occasionally even today in some education systems, writing is delayed a year and a half until reading is established; before that children are only expected to copy”. p 12

This makes me need to think about what are we communicating when we only expect copying? Does this lighten the cognitive load? Or does it make the integration of all the parts harder for some?

“Yet when children learn to write and read concurrently these activities help them to attend quite analytically to the oral language they already use. We can observe young children making links between speaking, reading and writing as they try to write their earliest messages” .p15

“Before school reading and writing have rather independent lives but they are most interactive at the point where instruction begins in school. For about two years they appear to share a great deal of common ground”. p17

Possible implication is that we need to understand reading as well? And oral language? Are we to be experts in this, is this our role? Can't be, surely we must partnership with

teachers and reading specialist, to use their knowledge to help us direct their /our ability to develop a plan that will assist the child. For me to know the details is important as I'm trying to work it out, and therefore I need to know as much as I can to see what I don't need to know, to be able to learn to ask the right questions, surely to be experts in occupation does not mean that we have to know how to do, and understand the theory behind each occupation in the world. So this leads me to ask what do OT's need to know about a child's engagement in handwriting?

“Writing is of critical importance for learning to read in early literacy intervention because writing prevents learners from neglecting or overlooking many things they must know about print, and reveal things about the learners ways of working that their teacher need to know about”.P18

This makes me think about the research that showed that one technique for struggling writers was to get them to write less, this would possibly slow down the development of the other parts of their knowledge around letters and literacy, therefore handicapping them more.

‘Teachers assume rightly that they have to make the challenges easy for particular children and they try to simplify the tasks in some way’.p19

“ The challenge is to make those hard things easier to learn”. P19

This leads me to think about when we advocate for adaptive technology , is it too late?

“.....in writing children must find visual forms to represent the sounds in the messages they have composed. When they check visually by reading what they wrote they find out whether it says what they intended to write”, p20 Clay 1991, 1993b, 1998).

Is this the difference from copying to reading, to creating?

Humphry's 2002 model – Study notes

Each of these themes impact on the social messages communicated by teachers through the occupation of handwriting. These social messages acknowledge Humphry's first stage of her model, this being; Step 1. Social participation and care giving routines guide the child toward becoming occupational by introducing intentional acts and by endowing experiences with meaning.

In the early stages of the 'evolution of handwriting' to recognize the shape, to form the letter, to hear and articulate the sound and name of the letter are stressed. Teachers continually communicating that letters are more than a drawing, but part of a code which leads to greater things. This leads to the second theme in which teachers capitalize on children's desire to be grown up, they point out that learning this 'wholeness of the letter' will enable them to do these greater things that bigger kids get to do. This progression is marked in tangible steps as the child is scaffolded through this handwriting journey. This is reflected in the teachers practice as each teacher had multi steps within their handwriting programs. Often running two to three programs at a time to accommodate the differing needs and abilities of their children, thus creating a clear sense of development along the handwriting continuum. Through the children's desire to be a 'big kid' they engage in tasks above their developmental level, forever striving to the next level. This ability to 'develop through doing', acknowledges Humphrey's second stage of her model, this being; Step.2. A self-organizing process enables children to integrate their immature capacities and engage in occupations.

The third theme connects closely to the child's ability to engage in this self organizing process. For a child to develop their immature skills through doing activities slightly above their developmental ability they need to have the courage and belief in themselves to take a risk. An important part of learning to handwrite are the lessons learnt by standing at the start of an activity and feeling the challenge of it being hard, but then through the process of engagement developing a belief in themselves that they will in time achieve. This risk taking value can affect their motivation to try, there determination to repeatedly practice and in time master the occupation of handwriting.

The graded stages of handwriting programs the children engage in and the future occupational role of being a writer are reflected in Humphrey's last two stages of her model, these being;

Step.3. Simultaneously, care giving shapes these emerging behaviours, ensuring that performance is culturally compatible.

This grading of behaviour and the social messages and expectations that go along with it are reflected in the forever changing learning intention communicated to the child. What is expected and praised when and child first starts to form letters is quickly modified to shape the development of handwriting to the next stage along the evolutionary journey.

This leads onto the final step of Humphrey's model.

Step.4. Using self organization to maintain occupational engagement, the child is able to accommodate their maturing abilities and the environmental challenges, thus starting a new pattern of reorganization which is the basis for the next cycle of development change.

This next cycle of developmental change captures the transition from learning to write and writing to learn. This is the point where handwriting is demoted from an occupation to a tool.

This taking on of the expectations and social messages is seen in the children striving to master their new skill and take pride in the development of their work. It is no longer good enough to just be able to write your name or form your letters, children strive for more! In striving for more spontaneous (and sometimes facilitated) comparisons amongst peers begin to occur. Comparison against peers is one measure the children inflict on themselves to map the progression of their maturity. Unfortunately this increasing self awareness of comparing skills across peers can have negative affects. One of these negative effects is seen in a decline in a child's ability to take risks into the role of being a writer. This leads the final part of my discussion into exploring the connection between handwriting legibility and speed, spelling ability and the development of 'being a writer'.

Humphry's 2006 – Study Notes

Model of processes: Transforming Occupations: Exploring Societal and Social Influences.

This model is “of the processes that bring about the emergence of an occupation and transforms in how it is performed and experienced 36. Change originates from multiple synergistic forces described by three clusters of propositions. First at the societal level propositions explain how a community creates occupational opportunities and supports the development of it's members. A second cluster of propositions describes how dynamic social transactions and collaborating in an activity contributes to change. The final cluster summarizes how the self organizing process that underlies an individuals occupational engagement contributes to development of an occupation.

“The PTO model assumes that appreciation of the emergent and situated nature of developing occupations must begin with understanding of societal ideas about a particular group of people, what activities are expected by a certain age and their occupational opportunities (Davis, Polatjko, & Rudd, 2002).p 38. *Ties into expectations and reflects the main intent of this study.*

First at the societal level propositions explain how a community creates occupational opportunities and supports the development of it's members.

‘Communities are locally-organised groups of people that share values and have common cultural practices or shared ways of doing things that have normative expectations and are given significance beyond the immediate goals of the activity’ (Miller& Goodnow,1995, Rogoff, 2003)p39.

What is the significance given beyond the immediate goals of the activity. The significance beyond the immediate goal of the activity relate to the setting down of pathways in the brain, that will help with the child being able to engage in self organizing behaviour in regard to literacy learning.

The “community” is the community of new entrance teachers, some of the shared values that emerged from this study have been that handwriting is taught to first be an

occupation with the forecasted goal of it turning into a tool, and being upgraded to the occupation of “being a writer”. Within this value the teaching of the wholeness of the letter, writing and handwriting were never separated for long. All six participants taught handwriting in their own unique even with this diversity some common themes were drawn.

Add in about the themes.

‘Communities invest economic and social resources to support the development of occupations of the community member.’ p38

Possibly our society hasn’t invested as much into the occupation of learning to handwrite as the occupation of reading. I say this as the MOE has published and developed it’s own resources which it supplies to school to assist with the teaching of reading. However in the area of handwriting there is only two publications , the formation guidelines which were written in 1985 and another book called Dance with the Pen which was also written a while ago. As reading and writing have been argued to be reciprocal in there relationship in learning to be literate a joint publication looking at effective practice for literacy teaching was published in 2001. However this resource has very little directly written about how to teach the code of writing, especially the area of handwriting. Therefore teachers develop there own methods, as noted by participant A, B and E or they buy into a readily made commercial product like participant C and D.

Social resources come in two forms. One is paid resources of teacher aides or extra programs to support children who are having trouble with learning to write. This was noted in three schools utilising paid helpers. Within the Aotearoa / New Zealand education system there is also access to extra assistance from RTLB and occupational therapist through the moderate contract and for children with more sever difficulties through ORRS funding. However the six teachers interviewed did not directly access these supports. Add quotes. Social resources also extended to include parent helper, thus communicating that those outside the school environment also place value on teaching learning to handwrite.

	<p>Larson (2000) Study Notes</p>
<p>Interpreting</p>	<p>Interpreting: Conceptualization of child and class desires, needs, preferences, and wants to design and recompose occupations. (Interpreting: Conceptualization of child’s desires, needs, preferences, and wants to design and recompose occupations (Larson, 2000, p 274).</p> <p>In particular two themes surfaced under this element. First was the interpretation of what was motivating to five year olds. And secondly interpreting a child’s learning style and preference and matching that with how handwriting was taught and the expectations developed around this occupation.</p> <p>Five year olds strong preference for tactile and kinesics learning has been well documented. Three teachers involved a wide range of tactile activities within their program either to teach or reinforce the days learning around a specific letter, acknowledging this learning style preference. However, although early years of schooling often enable more large body learning experiences, the majority of formal education moves towards being more visual and then more auditory based throughout a child’s career. Therefore, being able to learn through these two other mediums is a covert skill also taught when learning how to handwrite. Connecting the wholeness of the letter could be argued as the first step towards moving children’s learning preference from tactile kinetics to auditory visual. Although handwriting involves a motor act of moving the pencil to form a letter it also requires the visual skill of recognizing the letter, the auditory skill of matching the correct sound to the correct letter shape, and the cognitive skill of remembering this information and then retrieving it quickly when needed. This interaction between the differing aspects of the letter and how the body and brain worked</p>

together to learn the letter was referred to by teachers as the wholeness of the letter. So, although the initial task was to teach handwriting, the teachers interpreted the need that in time the occupation of handwriting would be recomposed to the occupation of 'being a writer' therefore it was necessary to ensure that this 'wholeness of letters' was taught as the students would move on past this initial mastery of handwriting and then become more aware that 'being a write' involved more. Five out of six teachers either followed handwriting up with story writing or embedded story writing and handwriting together, thus further endowing the meaning that handwriting was a tool which enabled written communication. The one teacher who did not pair handwriting up with story writing, followed handwriting up with reading, this organization of the days routine also demonstrated that the written word conveys a message.

Another aspect of interpreting is the conceptualization of child and class desires, needs, preferences, and wants to design and recompose occupations.

Facilitating motivation, and the provision of rewards reflected a balance between external rewards and installing a sense of accomplishment . One school had undergone specific school wide program called the 'formative assessment contract' within this school external rewards of stamps, or stickers were excluded and not used as part of the teacher reinforcement tools. Two teacher interviewed from this school based their praise around specific feedback around the task itself. This technique mirroring what motor learning theory would term 'knowledge of results'. These two teachers clearly describing the specific part of the task the child had done well. One teacher also used feed forward to help children identify what to work on next. However both teacher where selective in when to use feed forward as they voiced concerns that always telling a child what they could work on next could possibly erode the child's self esteem. One teacher wrote feed forward on the top of the students books although

she noted it was more a prompt to herself about the next step of learning to facilitate for that specific child.

This practice of feed forward was also used by participant A although to my knowledge she or her school had not directly been influenced by the formative assessment contract. She remarked that even though the children could not always read what she had written that seeing her writing in their books was often a enough of a prompt for them to remember what they needed to work on.

Participant E noted that five year olds like to please and like to be praised. How praise was delivered varied between teachers, some teachers used stamps and stickers and ticks, others use high fives and jumps of excitements. Many teachers alluded to how grown up the child was becoming. The desire to grow up to be a big kid came through in many ways.

One teacher used the transition from Kindy kid to school kid to help change incorrect habits especially around poor letter formation or the use of capital. Other teachers used clearly different stages within their handwriting program to magnify the child's development from one stage to the next. The type of paper and the size of lines the children wrote on presented to be a concrete measure of development of skill. One teacher remarking how the students would often bring their parents in to see their new book.

Opportunities' for the child to learn within their learning preference is dependent on the teacher enabling these specific learning opportunities to occur. The teachers own personality ,teaching style impacts on how handwriting was taught. This was alluded to by the following quotes.

Part A = not liking songs or aaa- a

Part B = not using drawings

Part C = limited use of invented spelling

Part D = conducting handwriting in a military like manner

Part E = allowing children to sit where they wanted on the floor or at chairs.

	<p>Part F= not using books until they had mastered tidy writing</p> <p>Interpreting not only the child's learning style and how it matches with how the task of handwriting is taught but also the mix between the teacher teaching style and the child's learning style needs to be consider. This was noted the following quote'</p>
Forecasting	<p>Forecasting: Predication of possible futures and embedding of occupations into current daily rounds to move towards those future possibilities (Larson,2000, p 274).</p> <p>Teacher's predictions of the child's futures were guided by the English curriculum documented, this document has a stronger emphasis on the development of the occupation of being a writer than on the occupation of handwriting itself. This preference was seen in the teachers all clearly orchestrating their programs to move towards this ultimate occupational goal. Teacher were very aware that their children needed to move from learning to write to using writing to express their learning. Although not strongly expressed by the teachers interviewed the teachers acknowledged that difficulty in learning how to handwrite did have implications on the future development of the child being a writer. Five out of six teachers arranged extra assistance for students struggling to write.</p> <p>Although handwriting was often completed in a twenty minute block it was revisit again and again within the day. Each revisit supplying reinforcement of learning and another layer of social meaning.</p>
Perspective shifting	<p>Perspective shifting; Overarching process revising of perceptions of previous events an their meaning related to ongoing occupational engagement and choice (Larson, 2000, p 274).</p> <p>Quotes about using line and not using lines.</p> <p>Anna and teaching handwriting in context of story writing.</p> <p>Debbie number of incorrect practices.</p> <p>Use of picture verses not</p>

	<p>Clair number of repetitions children getting bored Faith about her Aussie experience</p> <p>Faith and the boy who couldn't write.</p> <p>Four out of seven teachers expressed how children came in writing their names in capitals, this was a skill that often needed to be re-taught. These teachers expressed they would rather have children come in with no writing skills than come in with incorrect habits. This has implications for occupational therapists as one very well known program call Handwriting Without Tears, (Olsen) uses writing in capitals as the first stage of the program. Discussions around teachers reluctance at accepting recommendations from therapists in teaching capitals first has been discussed on the listserve Chypot. These listserv conversations demonstrate that this concern is also felt by some teachers outside of the group I interviewed.</p> <p>However one teacher interviewed had a more pragmatic way of looking at this concern. This view is captured in the following quote,</p> <p>If they have writing, it is usually capitals, I find I do not have to teach them how to form them, just where to use them.</p> <p>This quote demonstrates that although handwriting is often the first step taught when learning the role of 'being a writer' it in itself is not an occupation it is just one part that is learnt on the journey.</p>
<p>Meaning making:</p>	<p>Meaning making: Overarching process finding alternative spiritual, optimistic, and meaningful explanations for life circumstances and occupational patterns (Larson, 2000, p 274).</p>

