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The effects of incorporating a word processor into a writing program: Seven individual case studies

Natalie Beck
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THE EFFECTS OF INCORPORATING

A WORD PROCESSOR INTO

A WRITING PROGRAM:

SEVEN INDIVIDUAL CASE STUDIES

by

**EDITH COWAN UNIVERSITY
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Natalie Beck B.A. (Ed)

A Thesis Submitted in Partial Fulfilment of the

Requirements for the Award

of

Bachelor of Education with Honours

in the

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Date of Submission: January 2000

USE OF THESIS

The Use of Thesis statement is not included in this version of the thesis.

ABSTRACT

Writing is a “complex interplay of social, physical, and cognitive factors” (Daiute, 1985a, p.1) and an essential part of every young child’s school life. However, “every school has at least a few children who can be classified as non-writers” (Aumack, 1985, p.46). Some children are often inhibited and “frustrated when they attempt to express themselves with pencil and paper” (Aumack, 1985, p.46) and are put off by the thought of writing, erasing and rewriting, thus producing “children who do not want to write” (Aumack, 1985, p.46).

In response to these statements, this qualitative study examined the effects of incorporating a word processor into a writing program. Seven students from a Year Three class participated in this study and were selected on the basis of convenience sampling from a split Year Three/Four class. The students undertook writing activities using both the word processor, and the more traditional method of pencil and paper, over the course of a six week period of investigation. The students were interviewed at the beginning and at the end of the investigation, using both conversational and standardised open-ended techniques, about their attitudes towards writing, attitudes towards the writing program currently employed in the classroom, and attitudes towards word processors. On going observations, anecdotal notes and tape recordings of conversations formed another gathering dimension.

To assess the effects of incorporating a word processor in the writing program and on attitudes towards writing, the participating students’ writing samples were evaluated using a standardised marking criteria (Tompkins, 1994) and the First Steps Writing Developmental Continuum (1994). The outcome of this study is a set of seven individual case studies describing the effects on seven Year Three students’ writing when word processors were incorporated into their writing program. Some general themes that emerged are also included, such as the effect of being able to use pictures, the effect on keyboard skills, the effect on enjoyment and confidence and the effect on completion rates- did the students achieve more using the word processor?

DECLARATION

I certify that this thesis does not incorporate, without acknowledgment, any material previously submitted for a degree or diploma in any institution of higher education, and that, to the best of my knowledge and belief, it does not contain any material previously published or written by another person except where due reference is made in the text.

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TABLE OF CONTENTS

Abstract	ii
Declaration	iii
Use of Thesis	iv
Acknowledgments	v
Table of Contents	vi
List of Figures	viii
Chapter One -	
Introduction	1
Background to the Study	1
Significance of the Study	2
Purpose of the Study	3
Research Questions	4
Summary	4
Chapter Two -	
Literature Review	6
Introduction	6
Defining Writing	6
Writing and Computers	10
Writing and Word Processing	11
Methodology – Case Studies	18
Interviews	20
Triangulation of Data	21
Reliability and Validity	22
Reliability	23
Validity	24
Marking Criteria Used to Assess Students' Writing	25
Guidelines Adapted from Cooper & Odell (1977)	29
Conceptual Framework	30
Conclusion	31
Chapter Three –	
Background Information	32
Participants	32
The School and Computer Availability	33
The Classroom Teacher and Computing Experience/Attitudes	33
Tasks Set	35
Word Processing Package	36
Data Collection and Analysis	37
Before the Study Commenced	37
During the Study	39
After the Study Concluded	40
An Overview of the Research Questions	42
Conclusion	43

Chapter Four –	Individual Case Studies	44
	Introduction	44
	Student A	44
	Student B	55
	Student D	67
	Student E	79
	Student J	91
	Student L	103
	Student S	114
	Summary	126
	Summary of Students	129
	Discussion of Figure 30	131
	- First steps	131
	- Change in attitude	131
	- Checklist information	132
	Conclusion	132
Chapter Five –	Research Questions	133
	Introduction	133
	Research Question One	133
	Research Question Two	134
	Research Question Three	135
	Conclusion	136
Chapter Six –	Themes and Discussion of Findings	138
	Introduction	138
	Effect of Prior Computing Experience	138
	Keyboarding Skills	139
	The Effect of Being Able to Use Pictures	140
	Change in Attitudes	140
	First Steps as a Measure	141
	Checklist as a Measure	141
	Completion Rates – Did the Students Achieve More	
	Using the Word Processor?	142
	Effect on Enjoyment and Confidence	143
	Effects on Rate of Proof Reading/Editing/Spelling/Mechanics	143
	Neatness	144
	Creativity	144
	Time Management	145
	The Software Package	146
	Boy/Girl Difference	146
	Conclusion	147
Chapter Seven –	Conclusion To Thesis	148
	Limitations	153
	Further Research	154
	Concluding Remarks	155
References		156
Appendix –	Conceptual Framework – Definition of Terms	160

LIST OF FIGURES

<i>Figure</i>	<i>Title</i>	<i>Page</i>
1	Standardised Marking Criteria (Tompkins, 1994)	27
2	Guidelines adapted from Cooper & Odell (1977)	29
3	An overview of research questions and outcomes achieved	42
4	Student A's first hand written story	46
5	Part of Student A's first word processed story	48
6	Part of Student A's second word processed story	50
7	Student B's first hand written piece	56
8	Part of Student B's first word processed story	59
9	Student B's second hand written story	65
10	Part of Student B's second word processed story	66
11	Student D's first writing sample	69
12	The last two pages of Student D's Christmas story	71
13	Part of Student D's second word processed story	73
14	Part of Student E's first word processed story	80
15	Part of Student E's story covered in a variety of objects	82
16	Student E's second hand written story	86
17	Two pages from Student E's second word processed story	90
18	Student J's first hand written story	94
19	Part of Student J's first word processed story	96
20	Part of Student J's first word processed story	97

21	Part of Student J's second word processed story	98
22	Part of Student J's second word processed story	99
23	Student L's first hand written story	105
24	Part of Student L's Christmas Story	108
25	Part of Student L's second word processed story	110
26	Student S's first hand written story	116
27	Part of Student S's second word processed story	121
28	Student S's second hand written story	122
29	Part of Student S's first word processed story	125
30	Summary of Students	129

CHAPTER ONE

Introduction

Learning to write in the primary classroom is essential if young children are to become literate members of our society. With literacy forming a vital component of any writing program and a vital prerequisite for later life, every child needs to be able to write, to feel confident enough to write, and to form positive attitudes towards writing at an early age. Much the same can be said about computer literacy.

Technology, in general, is available in a majority of primary schools today and it should be used to its greatest potential. In the language arts classroom, “word processors and computer-assisted writing programs are helping students to develop fluency, increase sentence maturity, improve diction, and expand story content” (McCurry & McCurry, 1992, p.37). One obvious area to incorporate computers into the curriculum is in the writing program through the use of a word processor. “A word processor can become the centrepiece for an effective writing curriculum, encouraging early language production and providing students with opportunities to connect reading and writing” (Simic, 1994 , p.3).

Background to the Study

There has been substantial research undertaken into the area of writing and into the area of the use of computers in the primary classroom, but there appears to be little

research undertaken into the combination of writing and word processors in the junior primary classroom and, in particular, with Year Three students.

Some studies were undertaken throughout the 1980s when BBC and Acorn Compact computers were only just beginning to appear in WA schools. They were not placed in one room to form computer labs nor placed in every classroom. In fact, a majority of schools had only one computer to share amongst many classes and across various grades. However, despite computers being more prominent today, their impact on the writing program has not been fully explored.

This study explored the effects on seven students' writing from Year Three in the context of using a word processor to compile stories.

Significance of the Study

Up until present, there has not been a great deal of research conducted into the effects of incorporating word processing into a writing program. There have been studies in relation to word processors and revision (Balajthy, McKeveny & Lacitignola, 1986), computers and non writers (Aumack, 1985) and the process approach to writing (Solomon, 1985). However, there does not seem to have been much research undertaken into the affects of writing and computers in the junior primary area, more specifically, word processing and Year Three (about eight years old) students. So there is a need to know what effect the incorporation of a word processor can have on a writing program in conjunction with these students.

Literacy is a vital focus in primary schools and it is this essential need for effective literacy that drove this investigation. Additionally, with computers being a common workplace tool, students need to know how to use these devices and how to use them effectively from a young age. Computing skills should not be taught in isolation, rather incorporated into the curriculum, and the writing program would seem a natural place to use computers and word processors. But, there is a need to examine the effect of word processors and writing in the Year Three classroom to determine if the incorporation of these devices is justified on the basis of students forming positive attitudes towards writing and word processors. Also, more importantly, there is a need to evaluate the effect that word processors can have on students' writing development from Year Three.

For those students that are reluctant writers, the results of this type of investigation may provide a rationale for the inclusion of word processors into the writing program so that these students are no longer hampered by some of the frustration that often accompanies writing tasks undertaken with pen and paper. It also needs to be determined if writing development can be enhanced through the students' exposure to the creative capabilities that word processors can potentially offer.

Purpose of the Study

The purpose of this study was to investigate the effect on Year Three students' writing when a word processor was incorporated into the writing program. This

investigation focused on the students' attitudes towards writing by traditional methods and by writing with a word processor.

Research Questions

Three research questions provided the initial focus for this investigation.

1. What attitudes do seven Year Three students possess in terms of writing and the writing program currently in place in their classroom?
2. What attitudes do seven Year Three students possess in relation to the use of word processors and writing?
3. How is students' writing development affected when word processors are used?

Summary

Every child needs to be able to write and this writing process is essential if young children are to become literate members of our society. To assist in this writing process, a word processor "can become the centrepiece for an effective writing curriculum" (Simic, 1994, p.3). With this in mind, it is vital to investigate writing when a word processor is incorporated into the writing program. This chapter has provided the background, the significance and the purpose of such a study as well as the research questions posed. The remaining chapters in this thesis are organised as follows.

Chapter Two looks at previous research conducted into this area of writing and computers. It also examines the case study methodology adopted, issues of reliability and validity, explains the standardised marking criteria that was used through out this investigation and its assessment of the students' work samples, and the conceptual framework which guided the study.

Chapter Three explains the context of the study and provides some insight into the participants, the school and the teacher. It also examines how the data were collected and analysed.

Chapter Four presents results from each of the students individually, through the presentation of seven case studies. Chapter Five answers each of the research questions that were posed. Chapter Six presents and discusses some common themes that arose throughout this investigation, while Chapter Seven provides concluding comments, presenting general findings and discussing limitations to this investigation.

CHAPTER TWO

Literature Review

Introduction

This Chapter focuses on previous research conducted into the areas of Writing, Writing and Computers, and on Writing and Word Processing. People have used writing in order to communicate for centuries, whether it was on the cave walls or on paper. It has often been defined as a dynamic process which enables the expression of thoughts, ideas, feelings and experiences. However, in schools it can be a long and quite laborious task for some students who find it difficult to write onto blank pieces of paper. This is where the word processor can assist the students.

The chapter discusses literature dealing with writing to literature dealing with methodological concerns, about case studies, interviews, triangulation of data, reliability and validity.

Defining Writing

The art of writing has been around for thousands of years and it “is a difficult craft to learn” (Solomon, 1985, p.39). People have used it to communicate on “cave walls, animal skins, clay, stone, papyrus and paper” (Daiute, 1985a, p.xiii). The tools that have been used for writing have changed providing the writer with generally increasingly more effective devices, from using clay tablets, to the quill, pen and paper and finally to computers.

Writing can be defined as a dynamic process “rather than a series of steps” (Shrofel, 1991, p,160), combining thinking, feeling and talking. “It involves finding a good idea, determining its focus, and then choosing the precise words that will express the idea so that others can understand it” (Solomon, 1985, p.39). It is a process “of discovery as writers develop ideas and create texts” (Daiute, 1985a, p. xiii). “Writing is one of the ways in which we explore our understanding of the world and discover the meaning of our experiences” (Ministry of Education (NZ), 1992, p.21). Writing should be seen as “more than a skill, more than an instrument; it is increasingly perceived to be central to the school learning process” (Walshe, 1981, p.7).

Writing should be a series of steps in which writers “discover what they know and do not know” (Jenkinson, 1988, p.714). It is a process which “enables us to discover, make clear and share personal interpretations of events and ideas” (Ministry of Education (NZ), 1992, p.21). This process approach to writing embodies “selecting, combining, arranging and developing ideas in effective sentences, paragraphs and often, longer units of discourse” (Writing K-7 Teachers Notes, 1992, p.3). The resulting piece of writing “communicates a whole message with a particular tone to a known audience” (Cooper & Odell, 1977, p.3).

Writing can be defined “in a broad context, and it involves all forms of writing from informal jokes and slogans to formal essays and articles” (Writing K-7 Teachers Notes, 1992, p.3). It is often much more than just ‘creative writing’ where children are expected to write about unrelated and imagined events or experiences (Writing K-7

Teachers Notes, 1992). “All writing is creative in that it reflects the individual language and experiences of the writer” (Writing K-7 Teachers Notes, 1992, p.3).

Writing in a school is often a long and quite laborious task and one that is sometimes viewed as “a one-sided game always won by the teacher” (Jenkinson, 1988, p.712) due to the teacher having the final say over a student’s writing piece. Children are often “hampered in their writing by the difficulties of transferring thought to paper” (Kahn, 1987, p.11) and disheartened by their returned work “bleeding from the margins with red-pencilled abbreviations” (Jenkinson, 1988, p.712). Because of this, children potentially can just give up and accept failure. For these children other ways of involving them in the joys of writing and the fulfillment which it can bring need to be found.

Writing in the primary classroom is important because it can be “a deeply personal act of shaping our perception of the world and our relationship to people and things in that world” (Walshe, 1981, p.19). It is through writing that we can often “sort out our ideas and thoughts in our attempt to make meaning” (Writing K-7 Teachers Notes, 1992, p.3) of our world.

We write to learn and we also write in an attempt to communicate with others. We write to clarify and to explore our thoughts and meanings (Writing K-7 Teachers Notes, 1992). It is also through these personal quests that children should be encouraged as “children’s writing develops when they are engaged in authentic language tasks for a variety of purposes that are clear to them” (First Steps Writing

Developmental Continuum, 1992, p.xv). In this respect, children are able to “gain access to the knowledge they have” (Kelly & O’Kelly, 1993, p.6). It is “difficult for students, as indeed it is for adults, to write about subjects on which they have little or no information” (O’Brien, 1992, p.98). Therefore, it is vital that children have an authentic purpose for writing, otherwise the task is meaningless to them.

“The minefield of writing is strewn with run-on sentences, misspellings, dangling modifiers, and trite expressions. A successful crossing is a rare experience” (Jenkinson, 1988, p.712). Nevertheless, writing is an essential component and a necessity for “living in a literate society. As such, it is essential that all individuals learn to write” (Writing K-7 Teachers Notes, 1992, p.11). By providing children with the means and appropriate materials, writing can become a fundamental component on the list of subjects that students enjoy the most.

For the purposes of this investigation, writing was viewed in terms of the following broad criteria from Tompkins (1994) (See Figure 1, p.27):

1. Ideas (ideas are creative, ideas are well developed, audience and purpose are considered)
2. Organisation (an organisational pattern is used, ideas are presented in logical order, topic sentences are clear)
3. Style (good choice of words, use of figurative language, variety of sentence patterns).

4. Mechanics (most words are spelled correctly, punctuation and capitalisation are used correctly, standard language is used).

These criteria and reasons for their use are discussed later in this chapter.

Writing and Computers

Computers “have been widely endorsed by educators as a means for improving students’ writing” (Harris & Graham, 1992, p.6). A computer, “employed as a word processor, is a valuable aid to children’s learning” (McGregor, 1984, p.80).

A word processor, if implemented into the curriculum should not be used merely in isolation to perform unrelated tasks, or used as a reward tool. Rather, it “must supplement writing instruction, not replace it” (Balajthy, McKeveny & Lacitignola, 1986, p.28). How to use it should not be taught in isolation, rather it “must be integrated with an effective instructional program” (MacArthur, 1988a, p.541). However, children “must still learn how to write by hand, with pen and pencil” (Aumack, 1985, p.48) to ensure that they become literate members of our society.

Computers can positively influence the writing process, but “the impact of computers on writing and writing instruction depends on how teachers and students make use of the technology” (MacArthur, 1988a, p.541).

Computers are “powerful and flexible writing tools that can have a significant impact on the writing process and on the social context for writing in the schools” (MacArthur, 1988a, p.536). Using word processors, students’ writing skills can

develop in exciting, engaging and in liberating ways. “When children write with word processors they do not have to worry about their handwriting. Specifically, they do not have to think about spacing their letters, keeping them on the lines, or shaping them correctly” (Kahn, 1987, p.56).

When children see the finished product of their written pieces produced with the assistance of a word processor, they “experience great satisfaction and enjoyment” (McGregor, 1984, p.84). This perspective often changes students’ views of handwriting from one “where correctness mattered more than content and neatness possibly stifled creative impulses” (O’Brien, 1992, p.98), to one where the students can achieve success and where they no longer need to be concerned primarily with neatness. For both teachers and students the computer experience can often challenge teachers’ prior learning as well as add new dimensions to both teacher and student roles.

Writing and Word Processing

Word processing often “remains the most commonly used computer writing application in English classrooms. It is the one which teachers feel most comfortable even though the majority would exploit only a fraction of the software’s capabilities” (Snyder, 1994, p.169). This application can help students to begin to see their work in a flexible way, where their ideas and thoughts can easily be changed, rearranged, combined, revised or edited. “Students can experiment with writing and easily correct errors, thus encouraging risk taking and problem solving” (Tompkins, 1994, p.356).

This enables the students to exploit the computer's capabilities of being able to "move backwards and forwards in the text, to attend to different parts more spontaneously" (Snyder, 1994, p.169). This process and ease of text manipulation "makes it a near ideal companion for the writer's finicky thought processes" (Green, 1984, p.21).

Students' writing development has the potential to be greatly assisted by the introduction of word processing and an effective teaching program. It would be unrealistic to assume that students, once seated at a computer will know how to operate this 'machine' effectively. Rather, it should be used to show the students how writers compose. "By articulating their thinking processes out loud as they generate text, teachers can expose the choices writers make when solving problems of forming sentences, clarifying ideas, and finding words" (Snyder, 1994, p.171).

In general, word processing can promote students' motivation to write, can engage the children in editing, can assist proof-reading, help printing techniques, can help students produce longer texts and can assist reluctant writers to write. "Using word processing relieves students from the tedium of recopying their final copies by hand" (Tompkins, 1994, p.363). Newman (1984) as cited by Seawel, Smaldino, Steele and Lewis (1994) points out that "with word processors comes a willingness by students to take risks in their writing. They know that what they write can easily be discarded, moved or changed. They begin to vary sentence structures, word choices and text organisation" (p.45). The word processor is a tool that makes it "easier to get things right" (Kahn, 1987, p.12). Also too, students can be proud of their neatly

printed, professional looking, “crispness of the computer copy” (Green, 1984, p.22), boosting “students’ feelings of accomplishment” (Tompkins, 1994, p.364) as students, in general, “seem to care a great deal about the appearance of their written work” (Kahn, 1987, p.12).

A process approach to writing is divided into stages which highlight an effective writing lesson. “Writing is not a single act, but rather an on-going process consisting of several progressive stages” (Boone, 1991, p.vii). These stages usually involve, “pre-writing, composing a rough draft, revising, editing and publishing” (Seawel, Smaldino, Steele & Lewis, 1994, p.44). All of these stages can become quite time consuming and often frustrating for students who have to re-write multiple copies of their stories until they get it right. This decreases interest and motivation leading to the children not wanting to, as Watt (1983) suggests, “make creative changes in their writing when they know they’ll have to re-write the entire work in order to integrate those changes” (as cited by Seawel, Smaldino, Steele & Lewis, 1994, p.45). This provides huge hurdles for students just to complete a ‘publishable’ copy of their work. This is where the inclusion of word processors in the writing program can help.

Teachers who have used word processors in their writing programs have noticed students’ increased motivation and improved attitudes towards writing (Seawel, Smaldino, Steele & Lewis, 1994). It also aids in the improvement of the students’ first drafts with the students wanting to change word/sentences to make their writing more comprehensible. “With word processing, however, students never have to recopy an

entire draft. This means that teachers can set higher standards for adhering to writing conventions” (Wheeler, 1985, p.58). Also too, the word processor “provides the tools to write without the manual labour that made writing distasteful” (Aumack, 1985, p.48) and the paper no longer is accompanied by smudge marks and little holes.

The word processor encourages the students to see their writing as temporary, as “fluid rather than static” (Balajthy, McKeveny & Lacitignola, 1986, p.28), with elements that can easily be changed, permitting students to “make revisions as they write” (Kahn, 1987, p.56). This ‘flexible writing tool’ “eases the physical burden of revising and editing by eliminating the need for tedious recopying” (MacArthur, 1988b, p.37). This “electronic text manipulation permits new ideas to be viewed on screen in a temporary form, providing a realistic image of what is being written without the finality of ink or pencil on paper” (Boone, 1991, p.vii). This enables the students to ‘go with the flow’ whilst writing, not having to “do battle with an eraser” (Kahn, 1987, p.12) and without having to be concerned about the “need to go through the drudgery of the re-copying process” (Yau, 1991, p.4). This re-copying process often leads to the students developing a negative attitude towards writing. Some students see this re-writing as a painful experience and often as “punishment for not catching ‘mistakes’ the first time” (Balajthy, McKeveny, & Lacitignola, 1986, p.28). This is also highlighted by Daiute (1983) as cited by Seawel, Smaldino, Steele & Lewis (1994): “the word processing programs can help children to write and revise more freely, willingly and creatively than with traditional writing instruments” (p.44).

“Pupils in school are often faced with the task of writing frequently onto blank pieces of paper and teachers are not always aware of the difficulties they face” (Deadman, 1997, p.19). Those ‘blank pieces of paper’ can be very intimidating to reluctant writers. The paper simply stares back at the student, offering no ideas nor stimulation. Often, writing “is a courageous act for those who have been unsuccessful” (Shrofel, 1991, p.172). However, “many children are able to express thoughtful experiences, but many have difficulty with handwriting; they labour over the first draft” (Simic, 1994, p.3). When compared to a word processor, these reluctant writers don’t feel so inhibited by the boundaries of the page. “The word processor can release the writer from restraints that inhibit the free flow of words and ideas. Students can feel free to take risks in their writing because they see that they can always change their minds” (Simic, 1994, p.4).

A word processor allows the reluctant writer “an opportunity to become enthusiastic about what has been an unpleasant, defeating task” (Aumack, 1985, p.48). This notion is highlighted by Taylor (1995) who states, “those children who were previously unwilling to write overcame this problem and were greatly motivated” (p.30). This notion of increased motivation is reinforced by Deadman (1997) who postulates, “computers can motivate children to learn” (p.19), thus enabling the students to become more engaged in their writing when using word processors.

Students often are hesitant to indulge themselves in the writing process as their writing is not worthy (or so they feel) of presentation. However, this is where the word processor can assist as Snyder (1994) comments: "Word processing also manifests another phase of writing, presentation" (p.170). "Children's writing thrives in an atmosphere in which their work is shaped and displayed for others to see" (Kelly & O'Kelly, 1993, p.7). Students are boosted and encouraged by the publication of their work. The word processor plays a vital role here in that the students, having access to the word processors, become proud of the "neat printed versions of texts" (Daiute, 1985b, p.2).

For children with writing difficulties "the computer is a teacher that can accommodate a variety of writing styles - from the excited, ebullient student who likes to talk while she works, to the silent, reluctant writer who slowly forms words and sentences" (Aumack, 1985, p.47). These type of students are the ones that can benefit greatly from the injection of a word processor into the writing program. They are able to achieve success and not be faced with the fear of failure. For these children, the computer assists their writing development by acting as a "non-judgmental third party, a good listener, a friend" (Aumack, 1985, p.48).

Although the word processor can enhance the curriculum, it "is not a magical writing tool" (MacArthur, 1988a, p.536). Any enthusiasm for their advantages can be counterbalanced "by the recognition that computers may be used to support different, even competing, pedagogies. Thus it is the responsibility of classroom teachers,

curriculum planners, school administrators and policy makers to decide if, how and for what purposes computers are used in literacy education” (Snyder, 1994, p.165).

Also, “simply making word processors available to students will not automatically improve their writing or revision skills” (Balajthy, McKeveny & Lacitignola, 1986, p.28).

However, the computer will not ‘fix’ some of the problems that some students have towards writing. It is not effective to simply place a student in front of a computer and expect all inhibitions and problems to disappear as “simply having a computer is not beneficial without an environment of guidance and response to students thinking, reading, and writing” (Daiute, 1985b, p.3). “Without proper teaching, inexperienced writers do not improve their writing by using a word processor. In fact, these writers are sometimes fooled by the illusion of the professional-looking copy. They tend to compose longer documents and revise more frequently. But their revisions focus on making changes at the word level, which don’t necessarily add to the quality of the text” (Wheeler, 1985, p.58).

In this study the word processor was used as a writing tool to enable the seven participating students to complete two stories over the course of a six week period. The students used the word processor to form ideas and pieces of writing in a temporal state, engaging in changing and addition of new information and editing as necessary.

In summary, although earlier studies do not specifically focus on Year Three students, this previous research indicates that computers used as word processors seem to have been mostly beneficial for those students that have used them. The potential benefits for students include enhancing editing skills, improving creative ideas, enhancing the mechanics of writing, expressing feelings of confidence and achievement towards writing and displaying risk taking while writing. These are very real possibilities that students involved in this study could achieve with the assistance of a word processor incorporated into the writing program.

In the remainder of this chapter, general aspects of the methodology are discussed such as case study information, interviews, triangulation of data, reliability, validity and the marking criteria used throughout this investigation.

Methodology

Case studies

In this investigation, the attitude taken was that a case study “typically involves the observation of an individual unit” (Burns, 1994, p.312). A case can be “a person, an event, a program, an organisation, a time period, a critical incident, or a community” (Patton, 1990, p.54). However, it must be an entity in itself, a bounded system and case studies are particularly useful “where one needs to understand some special people, particular problem, or unique situation in great depth, and where one can identify cases rich in information” (Patton, 1990, p.54). This means that this

methodology is well suited to answering the research questions in this study. A case represents, in this study, an individual student. Seven students participated in this investigation, therefore, seven case studies are the resulting outcome.

The case study, belonging to the qualitative paradigm, seeks to describe a unit “in depth and detail, in context and holistically” (Patton, 1990, p.54) and is the “preferred strategy when ‘how’, ‘why’, or ‘what’ questions are being asked” (Burns, 1994, p.313). In this study, ‘what’ and ‘how’ research questions form the initial focus.

The main techniques used in case studies are “observation (both participant and non-participant depending on the case), interviewing (unstructured and structured), and document analysis” (Burns, 1994, p.313) and all three measures were used in this study.

For this study, seven Year Three students from a split Year Three/Four class were the participants. The research conducted answered the initial research questions posed in an attempt to ascertain the students’ views with regards to writing, the writing program, word processors and the effect of incorporating word processors into the writing program. Interviews and observations formed the main data gathering techniques and these are discussed below. In addition, field notes, document analysis and evaluation of writing samples, led to seven individual case studies being constructed as a result of this study.

Interviews

To assist in the formation of these seven individual case studies, each student was engaged in a series of unstructured interviews throughout the six week period of investigation in an attempt to “discover the contents of their minds, their belief, wishes, feelings, desires, fears, intentions” (Minichiello, Aroni, Timewell & Alexander, 1995, p.22) with relation to writing, word processors, the writing program and computers. The purpose of this interviewing was “to find out what is in and on someone else’s mind” (Patton, 1990, p.278). These interviews consist of face-to-face interaction in an attempt to “elicit information” (Burns, 1994, p.218) from the participants. After all, “the fundamental principle of qualitative interviewing is to provide a framework within which respondents can express their own understandings in their own terms” (Patton, 1990, p.1).

Interviews “need to be reported and interpreted through the eyes of interviewees who provide important insights and identify other sources of evidence” (Burns, 1994, p.319). The task for the interviewer “is to make it possible for the person being interviewed to bring the interviewer into his or her world” (Patton, 1990, p.279), as with the case for this investigation. The evidence and results were formed through the eyes of seven Year Three students.

For this study the majority of interviews took the form of unstructured or in-depth interviewing where the form taken was that of a conversation “between the informant and researcher” (Burns, 1994, p.279) and where there was no list of

questions. This is also described as the informal conversational interview by Patton (1990) which “relies entirely on the spontaneous generation of questions in the natural flow of an interaction” (p.280).

The “informal conversational interview is the most open-ended approach to interviewing” (Patton, 1990, p.281). This type of approach was included in this study while the participants were working at the computer using the word processing package to formulate their writing. The advantage of using this type of interview with young children is that “the people being interviewed may not know during any particular informal conversation that the purpose of the conversation is the collection of data” (Patton, 1990, p.282).

The other form of interviewing used was the standardised open-ended interview (Patton, 1990). The standardised open-ended interview “consists of a set of questions carefully worded and arranged with the intention of taking each respondent through the same sequence and asking each respondent the same questions with essentially the same words” (Patton, 1990, p.280). For this study, this type of interview related directly to the research questions and directly to writing and word processing and each participant was required to write their responses.

Triangulation of Data

This process of triangulation “involves combining different methods in the same study to highlight different dimensions of the same phenomena, to compensate for

shortcomings of each method or to validate the findings by examining them from several vantage points” (Minichiello, Aroni, Timewell & Alexander, 1995, p.14).

For this study, triangulation of data occurred through interviews (both informal conversational interviews and standardised open-ended interviews [Patton, (1990)]), observations, notes taken and document analysis of students’ writing and their interaction with computers as word processors. These are elaborated further in a following chapter dealing with specifics of the data gathering methods.

Reliability and Validity

“The central aim of any data-gathering methodology is to improve both the reliability and validity of the information obtained” (Gorden, 1980, p.39). The following definitions are adopted for this study. Reliability refers “to a given study’s (or instrument’s) consistency, predictability, dependability, stability, and/or accuracy, and the establishment of reliability for a given study typically rests on replication” (Guba & Lincoln, 1989, p.235). Validity, is “the ability of an instrument to measure what it is designed to measure” (Kumar, 1996, p.137). With direct reference to case studies, validity is attended to when the able case study researcher “indicates the validity of the report by giving a detailed account of how they carried out the study” (Burns, 1994, p.328).

Reliability

In terms of reliability, (“the extent to which studies can be replicated” [LeCompte & Goetz, 1982, p.35]), the individual case studies formulated through this research will be reliable if the resulting outcomes could be achieved by other researchers using similar methods. However, “because unique situations cannot be reconstructed precisely, even the most exact replication of research methods fail to produce identical results” (LeCompte & Goetz, 1982, p.35) as human behaviour is never static.

As only one researcher was used for these individual case studies, to ensure reliability, every attempt was made to document exactly how the information gathered for this study was analysed and recorded so that any other researcher could replicate this study.

The social role that was adopted in the research site was one of participant rather than non-participant in that a rapport was established with the students to ensure that they would be able to communicate without hesitation during the conversational interviewing to maximise the reliability of the data gathered. All of these conversational interviews were undertaken in such a way so as the students, at any given time, “may not know during any particular informal conversation that the purpose of the conversation is the collection of data” (Patton, 1990, p.282). This way, the information obtained was not tainted due to the formal nature of an interview and peer interaction, thus increasing the reliability of the social situations and conditions.

To establish the reliability of the standardised open-ended interview, notes on the data collected were summarised and then the findings were presented to the students for approval or revision, serving as a member check. Any discrepancies were corrected and any additional data was added. This information was then triangulated with the observational data and data obtained from the students writing so that a high degree of reliability was achieved.

Validity

“Validity necessitates demonstration that the propositions generated, refined, or tested match the casual conditions which obtain in human life” (LeCompte & Goetz, 1982, p.43). The validity of the standardised open-ended interview, was maintained by posing questions related directly to the research questions and work that the students were undertaking. Thus, the standardised open-ended interview was measuring what it was designed to measure. The questions posed on the standardised open-ended interview possessed content validity as they demonstrated coverage of a full range “of the issues or attitudes being measured” (Kumar, 1996, p.138).

The conversational interview data were valid as the students were interviewed in their own, safe environment and while they were undertaking their work. This way the responses obtained reflect closely what the students were thinking and feeling as opposed to a strained response where the students do not feel comfortable to express their thoughts due to unfamiliar settings or peer pressure.

Internal validity is “the value of a study or set of studies for concluding that a casual relationship exists between variables” (Cooper & Hedges, 1994, p.536). In other words, internal validity “establishes how things really are” (Guba & Lincoln, 1989, p.234). To maintain internal validity through out this investigation, the observations made were assumed to represent the reality of the situation as seen (Fetherston, 1998).

External validity is “the value of a study or set of studies for generalizing to individuals, settings, or procedures” (Cooper & Hedges, 1994, p.535). For this investigation, the findings can be generalized in terms of the question that was initially posed ‘What effects resulted from incorporating a word processor into a writing program?’ To ascertain the generalisation that the word processors had a positive effect on the students’ writing and writing ability and to maintain external validity, the participants involved and the setting in which this investigation took place are well described in Chapter Three. Each of the students were examined individually, resulting in seven individual case studies being formulated. All data obtained was related to the research questions posed and was further triangulated to ensure that the generalisation obtained was valid.

Marking Criteria Used To Assess Students’ Writing

Writing is “multidimensional and not adequately measured simply by counting the number or quality of compositions a student has written” (Tompkins, 1990, p.370). With this in mind, a suitable marking criteria was needed in order to assess the writing

abilities of each of the students that participated in this investigation. An analytic scoring system, as outlined by Tompkins (1994), and adapted from Diederich (as cited in Tompkins, 1994, p.392) is one such scale that can be implemented to assess the quality of primary student's written compositions. "This traditional form of assessment is most appropriate when teachers want to compare students' writing against a standard of excellence" (Tompkins, 1990, p.389). In this system, writing is divided into four categories: (a) ideas, (b) organisation, (c) style, and (d) mechanics (as outlined in Figure 1) and permits a direct comparison to be made regarding the writing produced by the students. This comparison is not only limited to writing produced by each of the students involved in the study, but can be used to compare the students individual works when completed using the more traditional method of pencil and paper with those compositions produced using the word processor.

This set of standardised marking criteria was used to evaluate each completed piece of writing that each participant produced. Over the course of the six week period, each of the seven participants produced two completed works with the assistance of the word processor. Each of the participants also wrote responses to the two standardised open-ended interviews which were also evaluated, adding a third dimension to their writing evaluation.

WRITING PIECE NO:	STUDENT:	STRONG	AVERAGE	WEAK
Ideas 1. Ideas are creative 2. Ideas are well developed 3. Audience and purpose are considered Organisation 1. An organisational pattern is used 2. Ideas are presented in logical order 3. Topic sentences are clear Style 1. Good choice of words 2. Use of figurative language 3. Variety of sentence patterns Mechanics 1. Most words are spelled correctly 2. Punctuation and capitalisation are used correctly 3. Standard language is used				
Comments				

Figure 1 - Standardised Marking Criteria (Tompkins, 1994)

Each of the students’ completed written pieces were evaluated using the above criteria, not only by the researcher but by a second qualified teacher. The criteria above contains 12 points. If both the parties agreed 10/12 times on each sample, it was assumed that the resulting outcome was reliable. If the parties agreed less than 10/12 times, a discussion followed to resolve discrepancies. No inter-rater reliability index was calculated because of the low number of samples involved but the above approach ensured a sufficiently reliable measure.

In terms of validity, with regards to the standardised marking criteria above, both the researcher and the qualified teacher evaluated each completed writing piece using guidelines from Cooper and Odell (1977) (see Figure 2).

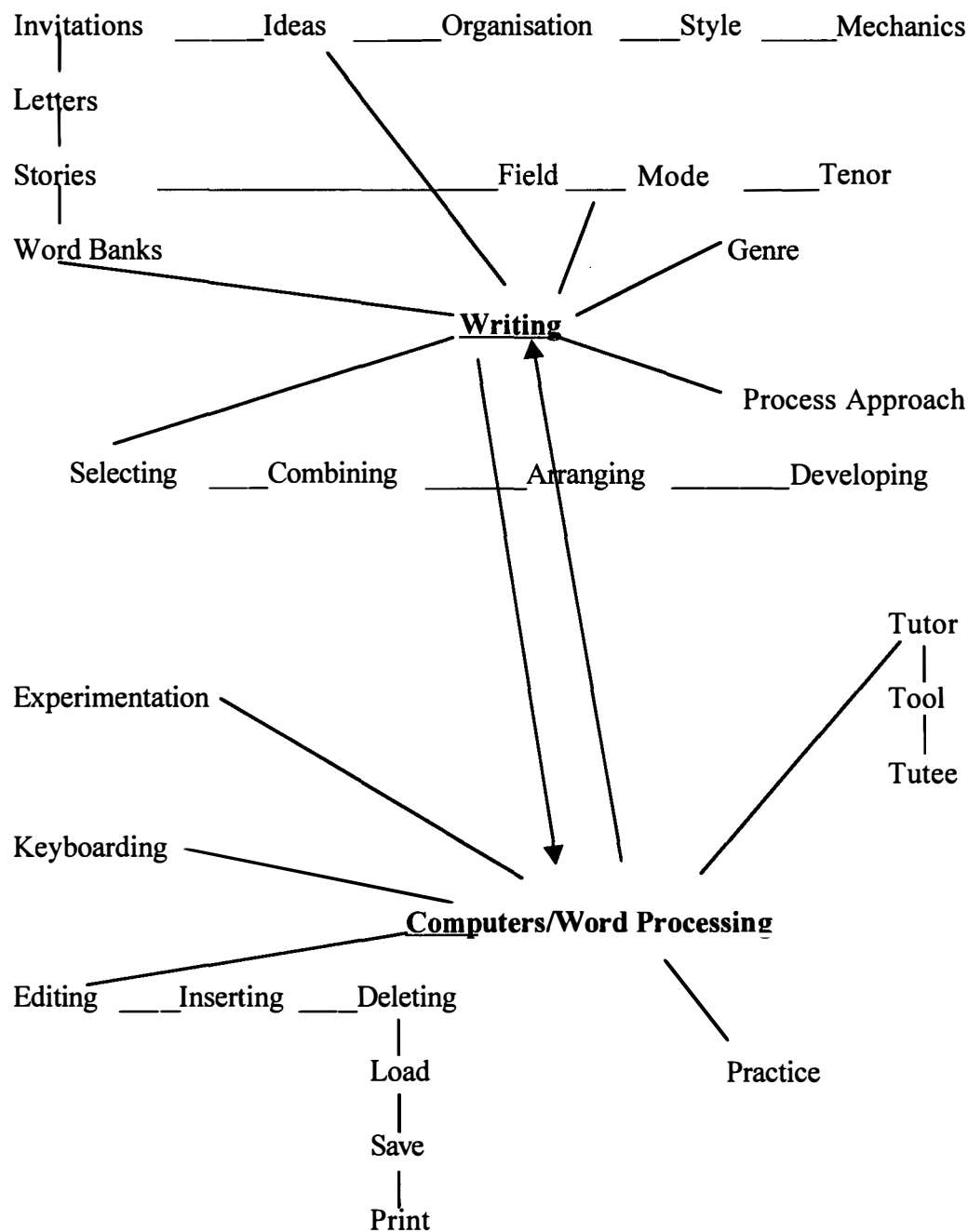
Cooper & Odell (1977) provided explanations for the writing categories of Ideas, Organisation, Style and Mechanics, dividing them into further sub-categories of Strong, Average and Weak. These categories were used to assess each of the students written pieces, determining their ability for each. Using such a well described system of evaluation, ensured that both parties enhanced the validity of the results.

IDEAS	ORGANISATION	STYLE	MECHANICS
1. Ideas are creative Strong - Ideas are expressed in a unique and interesting way. Ideas may be out of the ordinary or very imaginative. Average - Ideas are expressed in a limiting fashion. The author may employ some new ideas but not explore them in depth. Weak - Ideas are expressed in much the same ordinary way. The author chooses ideas that are familiar, rather than being taken away through experimentation.	1. An organisational pattern is used Strong - "The order of events is always clear to you even if at times the author might talk about the past or the future" (Cooper & Odell, 1977, p.22). The sequence of beginning, middle and end is clear throughout the written piece. Average - "A few times it is not clear which event happened first" (Cooper & Odell, 1977, p.22). The author has some idea of beginning, middle and end but often mixes ideas around. Weak - The author has no idea of beginning, middle and end with ideas strewn together. The final piece of writing has no adherence to the narrative style.	1. Good choice of words Strong - "Words are employed in a unique and interesting way" (Cooper & Odell, 1977, p.23). Average - "Common, ordinary words are used in the same old way" (Cooper & Odell, 1977, p.23). Weak - "The word choice is limited and immature. Sometimes the words are even used incorrectly - the wrong word is used" (Cooper & Odell, 1977, p.23).	1. Most words are spelled correctly Strong - In a piece of writing, most of the words are spelt correctly ie: 70-100% of the time. Average - In a piece of writing, many words are spelt correctly ie: 50-70% of the time. Weak - In a piece of writing, some of the words are spelt correctly ie: >50% of the time.
2. Ideas are well developed Strong - Ideas are expressed in great detail and are expanded to their capacity. Average - Ideas are presented throughout the writing but are not expressed in great detail. They may be touched upon but not fully expanded. Weak - Ideas are difficult to decipher and may be written in an underdeveloped way.	2. Ideas are presented in logical order Strong - The author always expresses ideas in a logical order, following on from each other and in sequence. Average - The author expresses ideas in some order but a few times it is difficult to decipher which event happened first. Weak - The author expresses ideas with no sense of order or sequencing.	2. Use of figurative language Strong } Average } No explanation required Weak }	2. Punctuation and capitalisation are used correctly Strong - All of the time the author writes punctuation and capitalisation correctly. Average - Most of the time the author writes punctuation and capitalisation correctly. Weak - The author is displaying difficulty with the piece of writing containing many punctuation and capitalisation errors.
3. Audience and purpose are considered Strong - The author is well aware of both audience and purpose and writes accordingly. Average - The author has some idea of audience and purpose but tends to deviate from this central ground. Weak - The author has no idea about audience nor the purpose. He/she simply writes for their own satisfaction.	3. Topic sentences are clear Strong } Average } No explanation required Weak }	3. Variety of sentence patterns Strong - "The sentences are varied in length and structure. The author shows a confident control of sentence structure." (Cooper & Odell, 1977, p.23). Average - "The author shows some control of sentence structure and only occasionally writes a sentence which is awkward or puzzling." (Cooper & Odell, 1977, p.23). Weak - Many problems with sentence structure. Sentences are short and simple in structure. " (Cooper & Odell, 1977, p.23).	3. Standard Language is used Strong - There are no obvious errors in the usage of standard language. Average - A few errors in the usage showing the writer has not quite been consistent in his/her display of standard language. Weak - The writing is full of errors in standard language.

Figure 2 - Guidelines adapted from Cooper & Odell (1977)

CONCEPTUAL FRAMEWORK

The framework below shows the main concepts which guided data and analysis. It shows a distinction between writing and computers/word processing and the different aspects of each as viewed by the researcher.



Conclusion

This chapter examined previous research pertaining to this study and it explored the general methodology used in the study such as case studies, interviews, how the data was triangulated, reliability and validity, as well as a marking criteria that was used throughout the investigation to evaluate the students written samples of work.

CHAPTER THREE

Background Information

This chapter provides a background to the participants, the school and the classroom teacher. It also outlines how the data were collected, how they were analysed to answer each of the research questions posed, and how the resulting case studies were conducted.

Participants

This investigation focused on seven participants (five girls and two boys) all from Year Three from a split Year Three/Four class in Metropolitan Perth. The students were selected on the basis of convenience sampling (Patton, 1990), as there were only seven Year Three students in the class.

The participants were involved in the study every day over the course of a six week period, during their writing time, from 9.00am -9.45am. Normally, during this writing time, the students were required to write onto blank pieces of paper. Often they were provided with a story or sentence starter, but at other times, they were required to construct all of the stories from scratch. The students usually worked very productively on their own yet they often viewed writing as a long and quite laborious task, having to edit, and correct their work, proof read and re-write.

The School and Computer Availability

The school where this investigation took place was a typical middle class school not unlike many others in the same district. The school was equipped with several MacIntosh computers situated in a lab as well as two computers per block which were shared among the teachers at additional times throughout the week. Each of the computers in the lab were fitted with CD ROM drives and were networked to printers. The additional computers were all stand alone units that were connected to their own printer.

The Classroom Teacher and Computing Experience/Attitudes

The teacher of these students was very pedantic about the neatness of the students' writing by hand. She encouraged running writing, even though some of the students from Year Three displayed difficulty in letter formation. A majority of the students, therefore, did not like writing due to the fact that their handwriting was messy and they did not receive a high grade for their efforts of neatness. This is described in detail throughout the case studies in Chapter Four. It was as if the students valued neatness over the content and mechanics of their stories.

Although the classroom teacher took the students for computer lessons twice a week, the students thought that sometimes she needed help using the computers. The letters below represent a pseudonym for four of the students (E, B, J, A) that participated in this investigation. This data was achieved through conversations with the students. Although traditionally results are not presented at this stage, this

is in order to provide the reader with a good understanding of the context of the study.

Their comments are about how good they feel their teacher was at using computers

(with the letter N representing the researcher):

E: Sometimes she needs help

B: ...she's learning

J: Yeh she's learning

N: So do you think that you know more about computers than she does?

A: Yes

E: Yes

This almost reflects how the teacher feels about computing in general, it was not one of her favourite subjects. In fact, it was ranked last by the teacher from the following subjects: Writing, Reading, Maths, Art, Social Studies, Phys Ed and Science.

When it came to typing, the classroom teacher insisted that the students practice the correct method of touch typing as she was not a competent typist and she wanted to ensure that her students were. She referred to "holding a pencil correctly" and related this to keyboarding. In other words, the students need to be able to hold their pencil correctly in order to hand write correctly and in order for the students to type correctly, they should use the touch typing method. But as pointed out by Student L, it was easier for them to use the hunt-and-peck method of typing because it was difficult for their little fingers to make the necessary reaches in order for them to type correctly:

L: Because when you are like that (demonstrating the correct home row position of the fingers) it is quite hard to get your finger up (demonstrating the difficulty of the reach with the little finger to the top row).

If the teacher could choose between paper and pencil or computers/word processors for her students to complete their stories, she would choose computers/word processor (“of course”). However, she would employ them as a ‘glorified typewriter’ with the students, once they have finished their stories (writing them by hand), they would publish them on the word processor. The teacher felt that this would make the students “feel proud of their final presentations of creative writing. It makes a more professional finish.”

Tasks Set

Over the course of this six week investigation, all of the students were required to complete two hand written pieces of work and two word processed pieces. The first hand written piece was a creative story about the student’s journey to school. They were provided with the story starter of “On my way to school...” but they could choose if they wanted to use it or not. This story could be as creative as they wanted it to be. The aim was to look at how creative the students were within the broad outline given. One example provided was that when the students walked out of their front door, they saw an elephant sitting on their front lawn. One of the students actually used this example which is reported during the case studies.

The second hand written piece of writing was a Christmas story. The students were provided with a story starter and they were required to complete their story from there. The story starter was: “It was very early in the morning when...” Although this story starter was flexible enough, some of the students displayed difficulty getting started. This is examined in more detail during the case studies.

The first word processed story required the students to complete a story. Five separate story starters were compiled on the word processor prior to word processing lessons commencement. The students were required to read each of the story starters, select the one that they liked the most and then complete a story based on this first page. It was interesting to note that all of the story starters were used and that friends didn’t necessarily choose the same starter. The students displayed their individuality by the selections that they made.

The second word processed story required the students to complete a Christmas story. However, the students had free choice as to what they wrote about. This type of topic was one that all of the students felt comfortable with and they really enjoyed being let loose to display their own individual ideas. The combination of the word processors coupled with the free choice element of this story proved motivating with all of the students working hard on their stories each lesson.

Word Processing Package

The word processing package that was used for this investigation was entitled Story Book Weaver Deluxe (The Learning Company, 1994). This creative

writing package is geared towards students between the ages of six-twelve. It is designed to assist in the writing development of students by stimulating them with “sensational sound effects and magnificent music” (Story Book Weaver Deluxe, 1994). This software package also provides the students with 1,600 story images and enhances the students motivation with “20,000 scene, colour, and pattern combinations” (Story Book Weaver Deluxe, 1994), all of which can be used to trigger the students’ imagination. This program also assists in the production of story starters and, with the right equipment, can read the students’ stories back to them. This feature was not utilised in this study.

Data Collection and Analysis

Data was collected through observation, interviews, tape recordings and writing samples. Data collection in this investigation was divided into three stages:

1. Before the study commenced
2. During the study
3. After the study concluded

Before the Study Commenced

The classroom teacher was interviewed about the background of the participants with particular attention being paid to the students’ writing abilities and their attitudes towards writing. This standardised open-ended interview was used to compile information, not only about the students’ abilities, but also on the teachers’ attitudes.

Some previous writing samples completed by the participants immediately preceding this study were collected and evaluated in terms of the standardised marking criteria as outlined by Tompkins (1994) and described in Figure 1, to determine an initial writing ability. Using this criteria, each of the students' writing was analysed by examining the number of ticks in each column (strong, average or weak). The column with the most number of ticks determined the ability of the students ie: strong, average or weak in terms of their handwriting.

The students' writing samples were then analysed using the First Steps Writing Developmental Continuum (1994) (by the researcher with assistance from the classroom teacher) to determine their stage of writing development. The First Steps continuum consists of key indicators which are denoted as ■ in this thesis. A key indicator is typical of a particular phase of development. "Children must exhibit all key indicators of a phase before they are considered to be operating in that phase" (First Steps Writing Developmental Continuum, 1994). The other indicators of a phase are denoted as ● so as to reward the small gains that are made by the students. After all, "development is, by nature, a slow process" (First Steps Writing Developmental Continuum, 1994, p.x). The students are labelled with a single alphabetic letter to represent their name and to preserve their confidentiality.

Each students' initial piece of writing was examined using the criteria outlined in First Steps. This information was used to compile an initial impression of each students' stage, and ability, of writing.

The final step in this stage was to interview the students, posing opinion and feeling type questions in the form of a standardised open-ended interview where the students wrote down and then discussed their responses, in order for the researcher to gain some insight into the students' attitudes towards writing as well as towards computers and word processing. This interview was analysed by recording what the students wrote and by transcribing the tape of the interview to ensure that all data were recorded.

During the Study

During the interaction with the students over the period of six weeks, it was essential that multiple data collection occurred to enhance the reliability and the validity of the concluding results. From this phase of the study, a series of conversational interviews took place, observations and field notes were compiled and each of the students' writing samples were evaluated using the standardised marking criteria as outlined by Tompkins (1994) and described in Figure 1, by the researcher and a qualified teacher.

The students were interviewed using a conversational style, while they were using the word processors, answering what, how and why questions generated through conversations with the student. Notes were compiled, using observations and tape recordings.

Students were observed using the word processors, and notes were taken accordingly as to the sort of applications and skills that the students possessed

and used while using the word processors to formulate their stories. These “careful, focused observation of students as they write” (Tompkins, 1994, p.373) took place every day over the course of the six week period. These observational data and notes compiled assisted in the “building up of the case record” (Burns, 1994, p.323) to facilitate the later writing of the report.

Each students’ writing samples were collected, after completion, during the course of the study and were analysed in accordance with the standardised marking criteria outlined by Tompkins (1994) and described in Figure 1. This criteria includes such aspects as punctuation, creative ideas, awareness of audience, words chosen, spelling and sentence structure, among others.

Discussion with the additional teacher with regards to evaluation outcomes were also conducted. Notes were devised in accordance with these criteria to help to shape a picture of each students’ writing over the course of this study in conjunction with the word processor.

Anecdotal notes of extra and relevant information were also taken to gather more information about each student over the course of the six week period. This extra documentation contributed to the richness of the final report.

After the Study Concluded

At the completion of the study, all of the collected students’ writing samples were analysed again in terms of the First Steps Writing Developmental Continuum (1994), using indicators from each stage of First Steps (1994), to determine the

exact stage of writing that each student was in. If no change had resulted since the initial assessment (in other words, if the student had not moved ahead into the next stage of writing development), then the student was evaluated in terms of the new indicators (as outlined in First Steps (1994)) that he/she may possess after the incorporation of the word processor into the writing program.

The students were re-interviewed using the standardised open-ended interview technique, about their attitudes towards writing and towards word processors in a similar fashion to the initial interview. Results were compared to the initial interview to see if any changes had occurred. The final interview gained the students' perspectives of the effects of incorporating a word processor into the writing program.

The students' writing samples collected before the study began were compared with those collected during the study to see what affects the word processors had on the students' writing.

RESEARCH QUESTION	DATA GATHERED BY	ANALYSED	OUTCOME
What attitudes do seven Year Three students posses in terms of writing and the writing program currently in place in their classroom?	Initial Standardised open-ended interview Observations Field Notes Tape Recordings	Each students' interview was read through and data was recorded in terms of the way the student felt about writing and the writing program. Observations and field notes were analysed in terms of each of the students' attitudes towards writing and the writing program. The tape recordings were transcribed and vital parts were included in the case studies.	An exact indication of each students' attitudes towards writing and the writing program currently in place was determined. Additional information about each student was obtained through the use of observations and field notes All tape recordings were used to substantiate what the students had written on their Initial Standardised open-ended interview.
What attitudes do seven Year Three students posses in relation to the use of word processors and writing?	Final Standardised open-ended interview Observations Field Notes Tape Recordings	Each students' interview was read through and data was recorded in terms of how the students felt about the use of word processors and writing. Observations and field notes were analysed in terms of the students' attitudes towards word processing and writing. The tapes were transcribed and any relevant information was recorded to include in the case studies.	An indication of how the students felt about using word processors to assist in story compilation. Additional information was obtained about each student through the use of observations and field notes. All tape recordings were used to substantiate what the students had written on their Final Standardised open-ended interview.
How is students' writing development affected when word processors are used?	Initial Standardised open-ended interview Observations Field Notes Tape Recordings Comparisons of writing samples (initial/final) First Steps Evaluation Standardised Marking Criteria Final Standardised open-ended interview	Each students' interview was read through and data was recorded in terms of how students initially felt about the writing process. Observations and field notes were analysed in terms of the students' development when they were using word processors to assist in their writing. The tapes were transcribed and any relevant information was recorded to include in the case studies. Each of the students' writing pieces were compared (both handwritten and word processed) to see if there were any differences. They were compared using the Standardised Marking Criteria and also through visual comparisons. Each of the students' writing pieces were evaluated using the indicators from the First Steps Writing Developmental Continuum (1994). Each of the students' completed pieces were evaluated using this criteria. The indicators of each criteria were used to place a tick into the columns of either strong, average or weak. The column with the most ticks indicated what sort of a writer each of the students were. Each students' interview was read through and data was recorded in terms of how the students felt about using the word processors to assist them in their story compilation.	An indication of each students' impressions of how they felt towards writing. Additional information was obtained about each student in relation to how their writing development was affected when word processors were introduced. All tape recordings were used to substantiate what the students had written about how the word processors had affected their writing. A direct comparison between the students handwritten and word processed stories permitted a comparison to be made as to how the students writing development was affected when a word processor was used to assist the students story compilations. A clear determination of what stage of writing development each of the students were in and what each student could be expected to achieve. Determined whether the student was strong, average or weak, depending on the criteria outlined. An indication from the students point of view as to how they felt the word processor had affected or not affected their writing and why.

Figure 3 - An overview of each research question and the outcomes achieved

The variations in keyboarding skills as well as the subjects' familiarity with both the word processor and the computer were taken into account and reported in compiling the individual case studies. This lead onto the final stage, that being the writing up of seven individual case studies using all the data collected that related to the research questions. Figure 3 on page 42 illustrates each of the research questions and shows clearly the link between how the data were gathered, how they were analysed and the resulting final outcome.

Conclusion

A number of different data gathering methods were used in order to obtain the necessary information required to produce the seven individual case studies. These methods included, standardised open-ended interviews, observations and field notes, tape recordings, comparison of the students written samples of work, a standardised marking criteria and the placement of each student onto the First Steps Writing Developmental Continuum. This chapter provided some background pertaining to the participants of this investigation as well as outlining how each of the research questions were investigated including what data were collected, how the data were gathered, how the data were analysed and the outcome obtained. The following chapters will present the results obtained in the form of individual case studies.

CHAPTER FOUR

Individual Case Studies

Introduction

This chapter looks at each of the individual participants. It pieces together information gathered about each student from previously described sources such as the standardised open-ended interviews, observations, First Steps material (where each student was placed in terms of their writing development), tape recordings and the marking criteria that was used throughout this investigation. It provides rich and specific detail about each of the students in an attempt to holistically describe each case.

Student A

Student A enjoyed playing tee-ball and had a puppy whose name was Pip. This student also had a home computer which was connected to the internet but she was not allowed to use this internet facility as her mum was worried that she “might go into the rude part of it” and may not know how to get out.

From the initial interview, Student A possessed quite strong feelings of distaste towards writing by hand and the school writing program. In her own words, she “hates it”. She believed that she was not a good writer because she didn’t like it. This student felt “good” when she completed a piece of writing, due to the fact that she had finished and was then able to get on with something else that she found more enjoyable. When this student was asked to comment about writing lessons, she couldn’t recall any and she further commented that she was “not sure” about writing lessons.

Also, from the initial interview, Student A liked to use computers “because it’s fun”. She was very positive about using the word processor to assist her with her writing as she felt that she would not be hampered by this method of writing (ie: keyboard and mouse). This student felt that she was a good typist:

N - So you can type without looking at the keys?

A - I can tell you a, s, d, f, j, k, k (using the correct fingers in the air as each of the letters were said).

From the initial writing samples, it was clear to me that Student A didn’t like writing. It was also clear she had a very articulate and creative imagination, but appeared to be hampered a little by the slowness of the pencil. It was as if she thought of her ideas faster than she could write them down and often became distracted by others. This lead to her not completing the initial writing piece, simply finishing it off by ‘To be continued...’ These conclusions are demonstrated in Figure 4.

On the way to school.

When I stepped out of my house
this morning, I came
across an ant which
I had a ride on to
school. At school the class
room had vanished, Mrs Syme
looked surprised. "When I rode
back home, on my ant it
said to me zoooooooook la le
ya. I didn't know what
that meant so I said
"I beg your pardon" that costs
\$2 thank you it says, but I thought
I said ohh all right. there
you go said ya—
or thank you. I stepped inside.
Mum asked me
what school was, but I
was afraid to tell her
the truth so I paid
or it was great."

Mum looked at me
suspiciously, ohh look at
the time I've got to do
my homework. to be
continued.....

Figure 4 – Student A's first hand written story.

Student A, in accordance with the First Steps Writing Developmental Continuum (1994), initially appeared to be in the Conventional Writing Phase, displaying the following indicators:

CONTENT AND ORGANISATION

- uses text forms to suit purpose and audience
 - demonstrates the ability to develop a topic
 - shows evidence of personal voice
- uses simple, compound and extended sentences
 - uses dialogue to enhance character development
- writes a topic sentence and includes relevant information to develop a cohesive paragraph.
 - orders ideas in time order or other sequence such as priority order
 - links ideas coherently in whole texts

WORD USAGE

- is beginning to select vocabulary according to the demands of audience and purpose
 - varies vocabulary for interest
 - includes specific vocabulary to explain or describe
 - provides sufficient information but little elaboration

EDITING

- edits and proofreads own writing after composing
 - attempts to correct punctuation

LANGUAGE CONVENTIONS

- punctuates simple sentences correctly
 - uses capital letters for proper nouns
 - uses capital letters to start sentences
 - uses full stops to end sentences
 - sometimes uses commas
 - maintains appropriate tense

PROCESS

- rereads and revises while composing

From the initial word processing task, this student took very well to this method of writing. Although she was more concerned with the correct placement of the pictures, she continued steadily to complete her story (even if she was the last to finish!). This initial word processed story was better constructed, in terms of varying sentence length, her ideas were better, she used a good choice of words and she spelt most of her words correctly. Figure 5 illustrates this:



The next day Amy went to the beach. In some blue jeans and a green t-shirt. She collected some shells and rocks. This time she didn't see Christeen. Though she still had fun. She saw the mermaid on the edge of the beach, but thought she imagined it. The water looked pretty. It had sparkles in it.

Figure 5 – Part of Student A's first word processed story.

From the checklists conducted at the conclusion of the initial writing samples, this student was deemed to be of strong ability in terms of her writing. Both the researcher and the additional researcher agreed 11/12 times for the initial hand written sample and 12/12 times for the word processed story, therefore, ensuring a sufficiently reliable measure.

When asked if she had a computer of her own at school, what would she use it for, besides playing games, she replied, "sometimes writing." Overall, initially, this

student had a very positive attitude towards using a word processor to assist in her writing.

Student A really enjoyed writing lessons while using the word processor, thinking about what her story would be like while she was writing it. She felt “good” about using Story Book Weaver Deluxe (1994) because she felt that it helped her write her stories (by way of the pictures that the word processing package provided and through the use of the spell check facility) and she was able to get ideas for her writing from this package due to its numerous backgrounds and pictures. However, this student didn’t think that she would be able to type a story without the assistance of the backgrounds and pictures that Story Book Weaver Deluxe (1994) provided. She feels that it would be “too hard”.

Student A’s attitude towards writing and word processing, was that on some days this student got stuck right into her story compilation, but on other days, she was more content to get the background and pictures for her pages just spot on. On days like this, Student A needed to be reminded to undertake some writing to correspond to the pictures that she had created. It was as though word processed stories were more enjoyable for this student as she was able to type the words that correspond to the pictures/backgrounds that the word processing package provided. Figure 6 is an example of how detailed her word processed stories were.



For the kids in Sydney it was not a normal month. Because it was December and that is the month of Christmas. But I'm sure you no that. As you can see some kids are having races; some kids are talking, some climbing, some resting and some kids aren't doing anything.



At school the teacher was preparing our class when the principal came in and scared her.-The teacher screamed so loud everyone in the playground could hear her.

Figure 6 – Part of Student A's second word processed story.

While this student was observed over the course of the six week program, she began to develop quite strong techniques in the input of information using the word processor. Student A would type whole words (sometimes even complete sentences) while looking at the keyboard. She then would look up at the screen to ensure all of

the words she typed were correct. This enabled her to let her ideas flow and not to be restricted by the slowness of her handwriting. Also too, this student was seeing her work in a fluid state, knowing that she could change any aspect if she was not satisfied. This student did edit and change her text after it was typed if she was not completely satisfied. The above examples (Figure 6) illustrate this.

When this student was observed during a writing lesson that was taken by the teacher, she took a little bit of time to get going. She slowly ruled up her page as if searching for inspiration. Then she got started on her work for around ten minutes, before she became distracted and paused for a couple of minutes before getting back to work. But while using the word processor, this student was able to focus for longer periods of time. However, she did become distracted at times, but it was due to the fact that she was able to look at different pictures to use for her story. It appeared that this word processing package was keeping her motivated to keep on writing.

Like most of the other students, Student A didn't like to share a computer while constructing her stories because she felt that when she shared, "you only get half time". She liked to be able to use the whole lesson to type up the pages to her stories and change her pictures as she chose rather than having to be thinking about how much time she had before she had to let her partner have a turn.

From the final interview, Student A felt that it was easier for her to get things done with the assistance of the word processor because it was quicker: "it is ten times faster" (Student A).

Yet even though it appeared easier to write, she felt that the program didn't really affect her writing, saying that "my writing is the same as before." This student also felt that she could concentrate longer while using the word processor. She felt that she wrote better stories using the word processor, in her own words she states:

A: Because sometimes your writing is messy and on the computer it is all the same size...and like sometimes you are really messy with your writing and the computer is always the same length, and ummm...always the same size...and it is a pretty style you can get into pretty style and it can be nicer printing than just your normal hand writing.

Student A further went on to say (with a little bit of help from Student B):

A: Well, same as what I said about rubbing out it's easier with Story Book Weaver cause, umm...

B: You can delete it

A: ...Yeh you can delete the picture and you can go over it but with our books, you have to rub it out and you can sometimes smudge it and...

B: Rip

A: ...and not have a big mark and rip.

At the completion of the six week program, when this student was again asked to comment about computers and writing (during the final interview), she expressed interest in using the word processor by indicating that she would like to do "more"

writing lessons using the word processing program used rather than using the traditional method of pencil and paper. This related to the neatness aspect (as mentioned earlier) as this student felt that while using the pencil and paper methods, she did not like writing as sometimes she was not neat.

Student A, in accordance with the First Steps Writing Developmental Continuum (1994) at the completion of the six week investigation, was in the Early Writing Phase of development and displaying the following indicators:

CONTENT AND ORGANISATION

- uses a small range of familiar text forms
 - uses a partial organisational framework ie: simple orientation and story development
 - often writes simple recounts of personal events or observations and comment
 - uses time order to sequence and organise writing
 - is beginning to use some narrative structure.
 - is beginning to use book language
- is beginning to use written language structures. Has a sense of sentence, ie: writes complete sentences with or without punctuation.
 - includes some dialogue.

WORD USAGE

- writes a range of words that are personally significant
- transfers words encountered in talk, or reading to writing.
 - highlights words for emphasis eg: AGAIN

EDITING

- begins to develop editing skills
- deletes words to clarify meaning
 - adds words to clarify meaning
 - begins to proofread for spelling errors

LANGUAGE CONVENTIONS

- attempts to use some punctuation
- uses capital letters for names
- sometimes uses apostrophes for contractions
- often writes in first person
- attempts writing in both first and third person
- usually maintains consistent tense

AFFECTIVE

- perseveres to complete writing tasks
- resents interruption
- is preoccupied with a desire to get everything right (applying also to pictures incorporated with text).

PROCESS

- rereads own writing to maintain word sequence

From the checklists conducted at the conclusion of the six week investigation, this student was deemed to be of a strong ability in terms of her writing. Both the researcher and the additional researcher agreed 11/12 times for the hand written sample and 12/12 times for the word processed story, therefore, ensuring a sufficiently reliable measure.

The classroom teacher felt that Student A, in terms of her writing, had “improved considerably since the beginning of the year.” She also felt that this student was a “very enthusiastic and independent writer.” In terms of this student’s attitude and ability towards computing, the teacher felt that Student A was a “bright button, enthusiastic and capable.”

Student A, regarding her writing by hand was ‘strong’ in all areas with an ‘average’ rating in the ‘mechanics’ section, more specifically in the areas of spelling and punctuation. This rating remained consistent for this student’s word processed stories. However, initially Student A possessed quite strong feelings of distaste towards writing. At the completion of this six week period, this student wished to do more writing lessons using the word processor. She is a very competent writer using either the word processor or by using the more traditional method of pencil and paper.

Student B

Student B enjoyed playing tee-ball and going rock climbing. This student also had a computer at home which was connected to the internet. This student used the internet frequently at home which she enjoyed playing games on and participating in chat sessions.

From the initial interview, Student B didn’t really like writing because, as she put it, “when you write you get a sore hand”. The emphasis of neatness was again seen as being of the utmost importance. This student got a ‘three’ in handwriting and consequently, she felt that she was not good at writing. In an interesting twist though, Student B did like writing lessons: “I like writing because you learn to write neater.” (Student B).

She also felt that how good her writing was, was equally important as how much she wrote because this student says that “writing is very important”, yet she couldn’t really elaborate why. Student B expressed delight in completing a piece of writing as she could “rest her hands.” This student viewed writing stories by hand as a big chore

that must be done for the teachers' sake, not something that this student really enjoyed doing.

Also, from the initial interview, Student B was very enthusiastic about being able to use word processors to assist in story compilation. She felt "great" about using word processors to help her write her stories because "it is easy to do."

From the initial writing samples, Student B tried very hard to complete her story. She appeared to write about an experience that was drawn from television or from a movie rather than rely on her own creative imagination to tell a story. Figure 7 shows an example of this.

A photograph of a handwritten story on lined paper. The title 'On my way to school.' is underlined at the top. The text is written in cursive and includes several corrections and additions. The story describes a character being drawn up to a friend's house, looking at a friend who turns into an alien, and then a series of events involving a teacher and classmates turning into aliens, which the character defeats with a pocket knife. The story ends with a character turning into a monster and a final line 'That was close.'

On my way to school.
Mum was drawing me up to my friends house. I was looking at my friend, Alex and then my friend turned into an Alien. It was gross. I walked down the hill and she started to eat the trees. I started to spy on her. She ate her teacher and her class mates and then they all turned into Aliens and started chasing me but then I remembered I had my pocket knife for show and tell and I turned around and pulled my Stanley knife out and killed them. Then I went to my class room and talked to my beautiful teacher. "Oh no my teacher turned into a big hairy monster "no Brooke it's only a mask" Oh Yeh. That was close."

Figure 7 – Student B's first hand written piece

Although this student worked fairly consistently using the more traditional method, she felt that she was not good at writing.

Student B appeared to be in the Conventional Writing Phase of Development according to the First Steps Writing Developmental Continuum (1994), displaying the following indicators:

CONTENT AND ORGANISATION

- uses text forms to suit purpose and audience
 - shows evidence of personal voice
 - considers the needs of audience and includes background information
- uses simple, compound and extended sentences
- writes a topic sentence and includes relevant information to develop a cohesive paragraph

WORD USAGE

- is beginning to select vocabulary according to the demands of audience and purpose
 - varies vocabulary for interest
 - includes specific vocabulary to explain or describe

EDITING

- edits and proofreads own writing after composing

LANGUAGE CONVENTIONS

- punctuates simple sentences correctly
 - uses capital letters for proper nouns
 - uses capital letters to start sentences
 - uses full stops to end sentences
 - maintains appropriate tense

PROCESS

- rereads and revises while composing

From the word processed story, Student B wrote a story that was nothing more than a series of ideas that she tried to link together but did not form a comprehensive story. She enjoyed selecting the different backgrounds and suitable pictures for each page, but there was not really any theme that ran through her story. She tried to tie things together at the end by saying “What a lovely dream” but it didn’t really work when she had already woken up several pages earlier! Figure 8 displays two continuous pages from Student B’s first word processed story, showing that these two pages are not really cohesive in any way.



Here we are at my Baseball game. We are winning by 5 points and the score is 45 to 50. I have got four home runs and my friend Ellis got three and my other friend Dean has got two. One of the cheer leader's is my friend. She is called Ashlee and she is really nice. "YEAH we won the game".



"WAKE UP CHILDREN." It was morning. My Mum come's in every morning. We have eight children and a Mum and Dad. What a lovely dream.

Figure 8 – Part of Student B's first word processed story.

Once this student was let loose on the word processor, she really started to enjoy the writing process. She would move the keyboard around to suit herself. Sometimes she would have it sitting on the table while at other times she would have it resting on her lap. If she was comfortable then she would produce more effective work throughout the sessions.

From the checklists conducted at the conclusion of the initial writing samples, this student was deemed to be of average/strong ability in terms of her writing. For the initial hand written samples of writing and for the word processed story, both the researcher and the additional researcher agreed 10/12 times, therefore, ensuring a sufficiently reliable measure. The main differences arose from the mechanics of writing as the additional researcher only viewed the completed copy and was not present for the editing processes, which in this case, required much attention.

Student B's attitude towards word processors and writing from the work samples and observations, emphasised that she really enjoyed completing her stories using the word processor. This student always wanted to be in control when it came to using the word processor. When she was required to share with a fellow student, I observed that she tried to take over by reaching for the mouse, trying to type in words or showing her partner where the letters on the keyboard were and asking every couple of minutes if it was her turn to use the word processor. If this student was not in control using a word processor, it was as if no one else was allowed to do any work either.

Student B really knew a lot about this word processing package. She displayed expertise by showing fellow students how to change the font type and size and she also knew how to alter the colour of the lettering on the title page. She was never afraid or shy about her knowledge and often boasted that she knew how to make changes, leaping out of her seat if someone needed assistance or if someone asked her how to change a letter to, say, red.

Student B displayed some difficulty with her proof reading and editing skills. Often she could not recognise where the end of a sentence should be. At times, she required consistent help, page by page editing assistance to ensure that her story was punctuated correctly. Sometimes this student was able to recognise some of her errors but because she had typed them often she read out what she remembered typing, not what was actually on the screen.

During this six week investigation, Student B became more confident about using a word processor, to her advantage. She became quite used to seeing her words in a transitional or in a fluid state as she used the arrow keys to correct her wording and sentence structure. Also, when this student was required to correct all or part of a word, she would delete the whole word and then re-type it. This suggests that this student was no longer concerned about the editing processes using the word processor as she was taking the long way to correct the words. She was shown the shorter way of editing and correcting words, yet she continued to delete entire word after word while editing her story.

From the teachers comments, this student was “aware of her intended audience and she expressed her ideas to the best of her ability in an imaginative style.” With regards to her computer ability and attitudes towards computing, the teacher felt that Student B “enjoys challenges” and is “very eager to learn.”

When this student was observed during a writing lesson that was taken by the teacher, she spent the first 15 minutes looking at what everyone else was doing before getting started on what she should have been doing. When using the word processors, this student tended to work consistently for about 15 minutes and then she would become distracted and disturb others around her, then she would regain focus and continue on with her story.

At the completion of the six week program, when this student was again asked to comment about computers and writing (during the final interview), she liked using the word processor because (again harping on the aspect of sore hands), she didn’t “get sore hands by typing” like she did while writing.

From the final interview, this student felt that she could concentrate longer using the word processor rather than using paper and pencil method as she felt that “it’s easier” and that the word processor helped her with her ideas. Also too, she felt that she wrote better stories with the assistance of the word processor as she states:

B: Story Book Weaver because it’s ummm, easier to write and you don’t always have to, if the pencil breaks, you don’t have to ummm, sharpen it.

Student B also expressed delight in wanting to do more writing lessons using the word processor rather than with paper and pencil.

Student B, in accordance with the First Steps Writing Developmental Continuum (1994) at the completion of the six week investigation, was, in fact, in the Early Writing Phase of development and displaying the following indicators:

CONTENT AND ORGANISATION

- uses a small range of text forms
 - uses a partial organisational framework eg: simple orientation and story development
 - often writes simple recounts of personal events or observation and comment
 - uses time order to sequence and organise writing
 - is beginning to use some narrative structure
 - is beginning to use book language
- is beginning to use written language structures. Has a sense of sentence, ie: writes complete sentences with or without punctuation.
 - writes in a style that resembles oral language
 - includes some dialogue
 - uses little variety in sentence length
 - joins simple sentences (often overusing the same connectors, eg: 'and')
 - includes little elaborations, usually simple description

WORD USAGE

- writes a range of words that are personally significant
 - transfers words encountered in talk or reading to writing

EDITING

- begins to develop editing skills
 - deletes words to clarify meaning
 - adds words to clarify meaning
 - begins to proofread for spelling errors

LANGUAGE CONVENTIONS

- attempts to use some punctuation
 - sometimes uses full stops

- sometimes uses a capital letter to start a sentence
- uses capital letters for names
- sometimes uses apostrophes for contractions
- often writes in the first person
- attempts writing in both first and third person
- usually maintains consistent text
- writes a title which reflects content

AFFECTIVE

- has difficulty writing because of the complexity of the task, eg: attending to spelling, handwriting, composing, punctuation simultaneously

PROCESS

- rereads own writing to maintain word sequence

From the checklists conducted at the conclusion of six week investigation, this student was deemed to be of average/strong ability in terms of her writing. In terms of the checklist for this students' hand written and word processed piece, both the researcher and the additional researcher agreed 10/12 times with the differences of opinion falling in the Organisation (an organisational pattern is used) and Mechanics (standard language is used) categories.

Student B, regarding her writing by hand was an average/strong writer. She was deemed 'average' due to her punctuation abilities and sometimes in terms of her development of ideas and spelling areas. Figure 9 displays the difficulties that this student displayed in her punctuation abilities and in the development of her ideas. This example was a Christmas Story that was written during class time and observed by the researcher.

It was very early in the morning
when I woke up. It was 1:00 am in
the morning I'll just go back to sleep.
"OWOW OW" stop. It Dennis! Remember
its Christmas. "YAHOO its Christmas" I
forgot. I looked at myself don't tell me
I'm Father Christmas. "yes you are." said Dennis.

"No I'm just in my costume. tricked you."
Now it is 3:00 am I'll get up anyway look at the
presents Santa got us. He didn't get us any.

Mum, dad wake up! Mum and dad weren't there.
Where are they, we went outside we went to
the neighbours house.

"Have you seen my mummy and daddy?" asked
my little brother.

"Yes we saw them running down the street
at 12:30 pm last night." Maybe something is wrong.
lets go to the North Pole.

They took a jet to the North Pole. A very
strong man was guarding the way in. He punched
me and my brother very far away.

To be continued.....

Figure 9 – Student B's second hand written story.

While using the word processor, Student B remained an average/strong writer, displaying difficulties with ideas in a logical order and punctuation. This student tried very hard with her writing and she preferred using the word processor to assist her with

her story compilation. Figure 10 shows two pages taken from this student's Christmas Story. Her ideas were fairly simplistic.



ONE WET SOGGY NIGHT ON CHRISTMAS EVE, SHANE WAS VERY EXCITED BECAUSE SANTA CLAUS WAS COMING TO SCOTLAND. DENNIS IS SHANE'S BROTHER AND THEY ARE STAYING UP ALL NIGHT.



SANTA AND HIS REINDEERS WERE ON THEIR WAY TO SHANE AND DENNIS'S HOUSE. "DENNIS AND SHANE WHAT DO YOU THINK YOU'RE DOING?" "UM WAITING FOR SANTA." "NO YOUR NOT YOUR GOING TO BED." "OH."

Figure 10 – Part of Student B's second word processed story.

Student B was very much at home typing her stories rather than hand writing them. She enjoyed the writing process more when she was able to change her ideas and thoughts around without having to re-write them. She also felt that she wrote better stories using the word processor. Student B was also able to concentrate for longer periods and she simply enjoyed seeing her work published in a neat printed form as opposed to her hand writing which she always received a 'three' for (one being the highest, five being the lowest). She was more motivated to undertake the writing process using the word processor and she didn't view the writing processes as "a one-sided game always won by the teacher" (Jenkinson, 1988, p.712). It was as if she was now in control of her writing and her ability and self esteem appeared to increase.

Student B while writing by hand was an average/strong writer according to the checklist conducted. She displayed difficulties in the style, mechanics, ideas and organisation categories. More specifically, variety of sentence patterns, spelling, punctuation, development of ideas and organisational patterns. However, while using the word processor, this student remained as an average/strong writer with improvements in her development of ideas. Student B, initially felt that she was not a good writer as she could not write neatly. At the completion of this six week period, this student enjoyed completing her stories using the word processor.

Student D

Student D would like to be a primary school teacher when she grows up. She did not have a computer at home but she was getting one for Christmas and she was looking forward to it a great deal.

From the initial interview, Student D felt good about writing “because it’s fun.” This student enjoyed writing lessons as they were her “favourite activity at school” and she also felt that she “learns a lot from writing lessons.” Regarding writing, this student felt that both how well she wrote and how much she wrote were important yet she couldn’t really express exactly why she felt that way. Again, the neatness of handwriting issue played a part in this student’s opinion of herself as a writer. She didn’t think that she was a good writer because she wasn’t “neat” and she also expressed distaste in her handwriting. This student did, however, feel “great” when she completed a piece of writing as she was then “able to move onto the next thing.”

Also from the initial interview, Student D liked the idea of being able to use the word processor to assist her in writing her stories, saying that she felt “great” about using them. This student went with the flow in that she shared the opinion of others rather than making a decision and sticking to it, even if others did not agree with her. So, in terms of her attitude towards writing, she felt “great” as the other students’ also felt great.

From the initial writing sample, Student D had a positive attitude towards writing but she could be considered a reluctant writer as she found it difficult to formulate her own ideas for writing, she often only wrote what was required and she needed consistent help in editing her work. With regards to the first writing sample, the idea of the elephant was provided by the researcher, so she was unable to think creatively for herself. She simply sat in her chair and stared into space until an idea was presented to her and then she expanded a little on it. Figure 11 is this student’s

first writing sample, where she wrote about the elephant that she saw on her way to school.

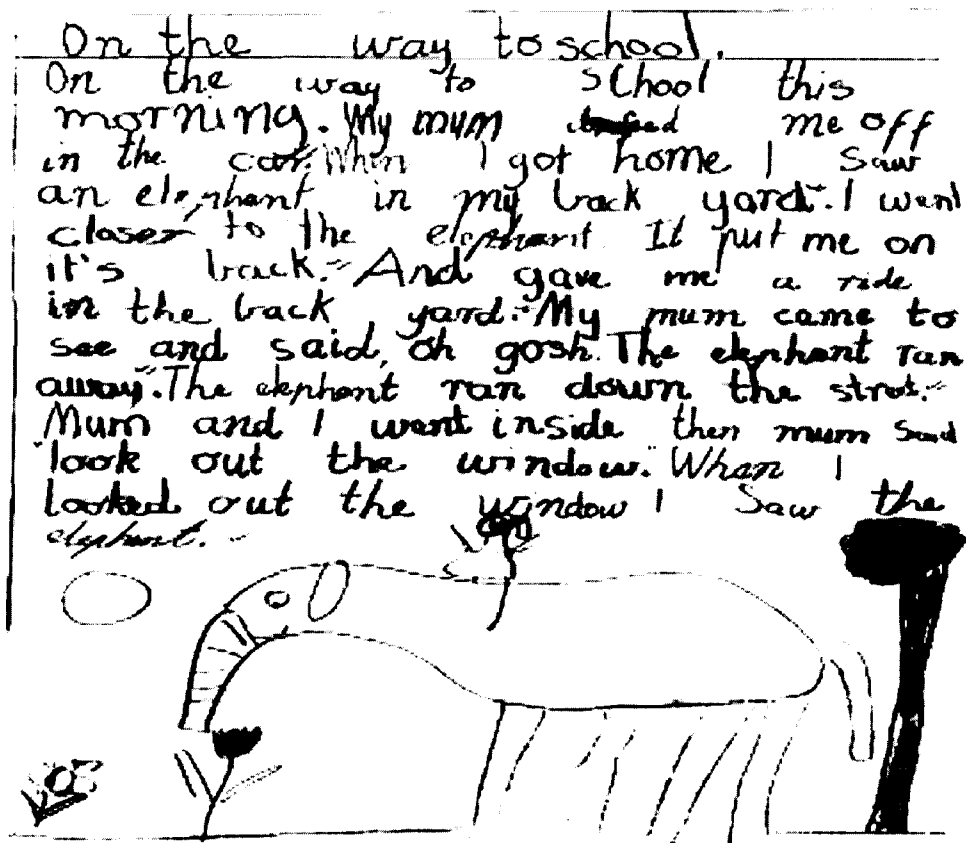


Figure 11 – Student D’s first writing sample

Student D, in accordance with the First Steps Writing Developmental Continuum (1994), initially appeared to be in the Conventional Writing Phase, displaying the following indicators:

CONTENT AND ORGANISATION

- uses text forms to suit purpose and audience
- demonstrates the ability to develop a topic
- shows evidence of personal voice

- uses simple, compound and extended sentences
- writes a topic sentence and includes relevant information to develop a cohesive paragraph

WORD USAGE

- is beginning to select vocabulary according to the demands of audience and purpose
 - uses words that adequately convey meaning but lack variety
 - includes specific vocabulary to explain or describe

EDITING

- edits and proofreads own writing after composing

LANGUAGE CONVENTIONS

- punctuates simple sentences correctly
 - uses capital letters to start sentences
 - uses full stops to end sentences
 - writes apostrophes for contractions
 - maintains appropriate tense

PROCESS

- rereads and revises while composing

From the initial word processed story, this student worked consistently. She rarely disturbed others around her and she was constantly being motivated and given ideas from the word processing package being used. She wrote a fairly lengthy story using the word processor, one that she would not have been able to achieve using pencil and paper. Her teacher was most impressed with her efforts.

From the checklists conducted at the conclusion of the initial writing samples, this student was deemed to be of weak/average ability in terms of her writing by hand, yet average when using the word processor. Both the researcher and the additional researcher agreed 11/12 times for the initial hand written sample with the difference of

opinion falling in the Mechanics (punctuation and capitalisation are used correctly) category. The additional researcher was only seeing the completed story, not the attention provided to this student to assist in the mechanics of her story. Both the researcher and the additional researcher agreed 10/12 times for the word processed sample with the differences of opinion falling in the Mechanics (most words are spelled correctly and punctuation and capitalisation are used correctly) category. Again, the additional researcher was only seeing the completed story, not the attention provided to this student.

This student tried really hard while undertaking writing lessons, but often she could verbalise her ideas but displayed difficulty writing and sequencing them on paper. For example, her word processed Christmas story was more like page after page of isolated ideas rather than a cohesive story. Figure 12 shows two continuous pages from Student D's story with no real theme running consistently through the pages.



Lois went to school. Nealy the hole of Lois's class went to swimming. So Lois, Jason and Tim talked about Christmas. Then they went home.

Figure 12 – The last two pages of Student D's Christmas story.



On Saturday Lois's family went to the rainforest. Lois saw a girl hiding.

THE END!

Figure 12 – The last two pages of Student D's Christmas story.

Also, writing by hand was a major effort for this student as she had to contend with all of the mechanics of the writing process, such as neatness, letter formation, spelling, and she was unable to let her ideas flow. However, while this student was using the word processor, she remained focussed throughout each lesson and typed the words as they came to her, not being at all concerned with their appearance as the word processor would make her writing neat for her. She enjoyed using the word processor to assist in her story compilation and she appeared to enjoy the writing task a lot more using this device.

Student D's attitude towards word processors and writing as determined from work samples and observations, appeared to be quite positive towards writing. With regards to word processing, it was as if this student used isolated backgrounds to try to tie her story together. She appeared to be more concerned with the amount of pages that she wrote rather than the quality of her story. Figure 13 shows three of

12 pages that this student wrote for her Christmas story. Each page can almost stand alone on its own rather than form part of a complex story with linking ideas.



The farries said "Don't be scared it's ok". Then the family decided to go home because they were so scared. So they went home. Lois said "That man lied".



With there money they bought a car and bought a new house.

Figure 13 – Part of Student D's second word processed story.



Lois's dad had night shift because he worked at an airport. So he didn't get to come to the mountains with his family. It was very cold but he would be back for the Christmas fireworks tomorrow.

Figure 13 – Part of Student D's second word processed story.

Student D experienced difficulty in proof reading and editing her stories. Often this student would re-read her story and say that it was fine, yet it would be full of grammatical errors and spelling mistakes. Also too, this student could often not recognise speech in her story. She was certainly still developing these skills but she was always keen to learn how to correct her mistakes.

Student D called upon her background knowledge and wrote about things that were familiar to her. When asked what she thought about while she was writing, she simply stated that she thought about “the story” while she was composing it. Also too, Student D didn't feel that she could type a story without the assistance of the background and pictures that Story Book Weaver Deluxe (1994) provided as she felt that “it wouldn't look that good”.

Over the course of the six week period, this student progressed at her own rate to complete her stories. While this student was compiling stories by hand, she would

distract others around her, yet when she was working on the word processor, she would only become distracted if a fellow student distracted her. She possessed a greater concentration span while using the word processor than she did while writing her stories by hand. This student while writing her stories by hand, wrote as little as possible to achieve the task. However, when she was able to use the word processor, this student was more concerned with quantity, writing page after page after page and compiling the longest stories for this group. She was creatively more free using the word processor, knowing that she could change her words as necessary, while writing by hand, it was as though she needed to get things right the first time.

When this student was observed during a writing lesson that was taken by the teacher, she took a lot of time to carefully rule up her page and then procrastinated for a further five minutes before getting started on her work. However, when this student was working at the computer, she started straight away and remained focused for the majority of the lesson. It was as if this student did not want to waste any time while using the word processor.

When Student D started to type her stories, she started off by typing word by word and looking up at the screen after each word to ensure that they were correct. However, towards the end of the investigation, this student typed multiple words while looking at the keyboard and then she looked up at the screen to check the words' correctness. When deleting letters from words, she didn't delete the whole word, instead, she used the arrow keys to go to the correct place in the word and then she proceeded to delete the necessary letters. This student also appeared to use the background/pictures as a prompt rather than to sequence her ideas.

From the final interview, Student D felt that the word processor affected her writing because “it is neater.” She also felt that using the word processing package was “really fun and I wish I could do Story Book Weaver every day of my life.” This student thought that the word processor could help her to concentrate more on her writing as she felt that it gave her more time. Student D felt that she didn’t have to think about neat letter formation, she was simply able to let her ideas flow and the word processor would make her story neat. She thought that she wrote better stories using the word processor as she could “get more ideas” from it and this student would also like to do more writing lessons using the word processor.

Student D in accordance with the First Steps Writing Developmental Continuum (1994) at the completion of the six week investigation, was, in fact, in the Early Writing Phase of development and displaying the following indicators:

CONTENT AND ORGANISATION

- uses a small range of familiar text forms
- uses a partial organisational framework, eg: simple orientation and story development
- often writes simple recounts of personal events or observation and comment
- is beginning to use some narrative structure
- attempts to orient, or create a context for the reader, but often assumes a shared context
- is beginning to use ‘book’ language
- has difficulty staying on topic
- is beginning to use written language structures. Has a sense of sentence, ie: writes complete sentences with or without punctuation
- writes in a style that resemble oral language
- includes some dialogue
- uses little variety in sentence length
- joins simple sentences (often overusing the same connectors, eg: ‘and’)
- includes little elaboration, usually simple description

WORD USAGE

- writes a range of words that are personally significant
 - transfers words encountered in talk, or reading, to writing.

EDITING

- begins to develop editing skills
 - deletes words to clarify meaning
 - adds words to clarify meaning

LANGUAGE CONVENTIONS

- attempts to use some punctuation
 - sometimes uses full stops
 - sometimes uses a capital letter to start a sentence
 - uses capital letters for names
 - attempts to use some question marks
 - often writes in the first person
 - attempts writing in both first and third person

AFFECTIVE

- perseveres to complete writing tasks
- has difficulty writing because of the complexity of the task, eg: attending to spelling, handwriting, composing, punctuation simultaneously

PROCESS

- rereads own writing to maintain word sequence

From the checklists conducted at the conclusion of the six week investigation, this student was deemed to be of average ability in terms of her writing. From the checklist for this students hand written piece, both the researcher and the additional researcher agreed 12/12 times therefore, ensuring a sufficiently reliable measure. Both the researcher and the additional researcher agreed 10/12 times, for the word processed story with the differences occurring in the Mechanics (most words are spelled correctly, and punctuation and capitalisation are used correctly) category.

The classroom teacher commented that Student D had “improved sentence structure” while “attempting to use correct punctuation. Work is usually untidy though.” The classroom teacher also felt that this student’s attitude towards computing, was “a very casual reaction when given challenging and new projects”, however, the teacher felt that Student D was “quite capable” of completing the set tasks given to her.

Student D did not like to share the computers because she felt that if she had her own computer, she could do her own work and concentrate on her own writing. She also expressed interest in undertaking more writing using the word processor as opposed to the more traditional method of paper and pencil. Student D certainly enjoyed the writing process and felt less inhibited by being able to type her stories. She felt that she was able to achieve success in her writing using the word processor as she liked her word processed stories a lot better than her hand written ones.

Student D was very content to type up her stories using the word processor. It was as if the writing process was not so daunting as the word processor could help her by providing ideas and by assisting her in her editing and correction process. She was able to focus more on what she wanted to say rather than to focus on how to write it. This student also felt that she could write better stories using this medium.

Student D while writing by hand was a weak/average writer according to the checklist conducted. She displayed difficulties in the ideas, organisation, style and mechanics categories. More specifically, creative ideas, development of ideas, choice of words, figurative language, sentence patterns, spelling, punctuation and capitalisation.

When it came to using the word processors, Student D was an average writer. Her development of ideas improved, the variety of sentence patterns became strong, and her punctuation improved. She still had some difficulty with her spelling, but she was able to use the spell check facility to assist her. Student D really enjoyed the writing process a whole lot more while using the word processor. It was as if she was required to focus only on her writing and not on the mechanics of it. She was not required to get it right the first time.

Initially, Student D didn't think that she was a good writer as she was not neat, expressing distaste in her handwriting. At the completion of the six weeks, this student enjoyed using the word processor to assist in her story compilation and she appeared to enjoy the writing task a lot more using this device.

Student E

Student E liked skipping, going on her roller skates and playing on the computer. She liked using computers because she could play games and because "it's fun". This student also had a computer at home which she used for typing things, doing work and playing games.

From the initial interview, Student E seemed the most preoccupied of all the seven students with the neatness of her handwriting. She said that she "doesn't like writing stories as she doesn't like her handwriting that much." This student also didn't think that she was a good writer as she "sometimes doesn't have a sharp pencil." This student "sort of likes writing lessons" but she only really "likes writing a few sentences." Student E felt that how good her writing was was more important than how

much she wrote because sometimes she's neat and sometimes she's not. Finally, this student simply felt "happy" when she completed a piece of writing.

Student E didn't like writing stories by hand but she liked typing them. She got a lot of enjoyment out of being able to use the word processor and she really enjoyed using the word processing package that was used. This student tried to put as many pictures onto the background as possible. She spent most of each lesson inserting/deleting the numerous objects. She then called on her background knowledge to complete the writing about each page. Figure 14 shows two pages from Student E's first word processed story. Each page contains a lot of detail.



I came to think about a beautiful scenery, that had lots of nature. It was beautiful. There was an apple tree, an orange tree and an oasis bit near a pond I even saw a little campfire with mushrooms. Around the campfire sat a bear, a beaver, a calf and a cat.

Figure 14 – Part of Student E's first word processed story.



Mary decided to let her mind go back to the classroom, but before she did, she started
 to think about a land she was longing to go. Suddenly she found out she was
 in that place. Suddenly it started to get scarier and and sader, like a husky biting a
 turtles flipper off I decided to go to another place.

Figure 14 – Part of Student E's first word processed story.

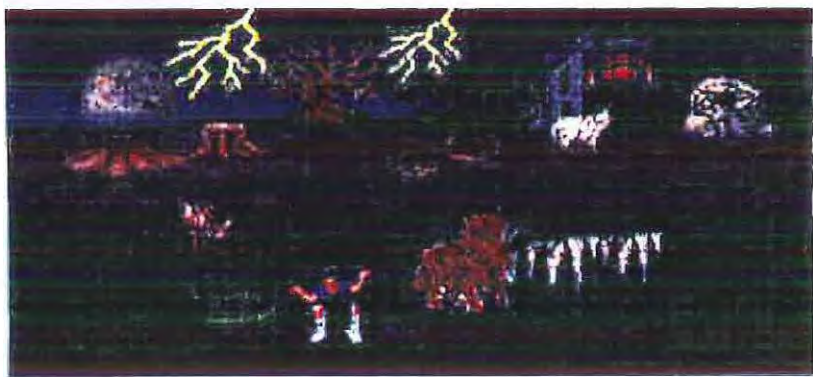
Student E was a very obliging student that tried hard all the time to please and to
 meet any teacher expectations. She was a very creative student who appeared to enjoy
 the writing process. She was very capable of expressing her ideas and was able to draw
 on previous knowledge, be it from personal experience or from something that she had
 read.

From the initial word processed story, Student E was more content to fill her
 page with various pictures (shown in Figure 15), which looked fantastic on the screen
 but unfortunately lost their appeal when her story was printed out as they were in
 black and white. She was able to use the word processor to write quite remarkable
 words for a student of her age ("Suddenly it started to get scarier and scarier, like ... a
 husky biting a turtles (sic) flipper off.") She also appeared to be able to explain her
 ideas better using the word processor ("Lightning came from the sky and the windows

of the haunted house opened.”) This student certainly appeared more confident in the writing processes when she was able to use the word processor to assist her with her story compilation.



Wow! it was a beautiful sight! I saw a kitten in a waterfall and a mother and baby lamb, and a mother and two sister goats. There was horses, frogs, a lion and cheetah.



Mary thought about a haunted house that had two snakes, a dinosaur, a wolf and a wild boar. There was two spiders as well. Lightning came from the sky and the windows of the haunted house opened. It grew colder and darker.

Figure 15 – Part of Student E’s story covered in a variety of objects

Student E, in accordance with the First Steps Writing Developmental Continuum (1994), appeared to be in the Conventional Writing Phase, displaying the following indicators:

CONTENT AND ORGANISATION

- uses text forms to suit purpose and audience
 - demonstrates the ability to develop a topic
 - shows evidence of personal voice
 - considers the needs of audience and includes background information
- uses simple, compound and extended sentences
- writes a topic sentence and includes relevant information to develop a cohesive paragraph
 - orders ideas in time order or other sequence such as priority order
 - links ideas coherently in whole texts

WORD USAGE

- is beginning to select vocabulary according to the demands of audience and purpose
 - varies vocabulary for interest
 - includes specific vocabulary to explain and describe

EDITING

- edits and proofreads own writing after composing

LANGUAGE CONVENTIONS

- punctuates simple sentences correctly
 - uses capital letters to start sentences
 - uses full stops to end sentences
 - sometimes uses commas
 - writes apostrophes for contractions

PROCESS

- rereads and revises while composing

From the checklists conducted at the conclusion of the initial writing samples, this student was deemed to be of strong ability in terms of her writing. From the initial hand written sample, both the researcher and the additional researcher agreed 12/12, therefore, ensuring a sufficiently reliable measure. In terms of the initial word processed story, both the researcher and the additional researcher agreed 10/12 times with the differences occurring in the Mechanics (most words are spelled correctly and punctuation and capitalisation are used correctly) category as the additional researcher was only seeing the completed story and not the draft copy of this students story.

With regards to the attitude towards word processors and writing from work samples and observations, this student had a positive attitude towards writing. She enjoyed the writing task more with the assistance of the word processor as she stayed on task a lot longer using this method rather than pencil and paper. She also said that she would like to do more writing lessons using Story Book Weaver Deluxe (1994). This may be due to it's motivational aspects such as the colourful backgrounds and pictures that the students' can select, the music and sounds that this package provides and the elimination of the need to write on blank pages that offer no stimulation nor encouragement. This theme is discussed further on page 140.

When asked what she thought about while writing, Student E said that she "thinks about all different things, but most of the times I think about what I'm doing on the computer". When asked about where her ideas for writing came from she said, "sometimes I make them up as I go along or sometimes I make them up another time and remember it and then type it." She enjoyed writing stories. It was as if she was

able to let her imagination run wild and it was simply a matter of her hands being able to keep up with her thoughts.

Over the course of the six week period, Student E was quite content to work at her own pace and on her own. Often she would only communicate with the other students if she could not locate a picture that she wanted to use or if she wanted to know how many pages the other students around her had written.

When this student was observed during a writing lesson that was taken by the teacher, Student E started straight away, ruling up her page, writing down the sentence starter and starting her story. This appeared to be a topic that she could really relate to and was able to draw on personal experience to write (the students were required to write a Christmas story from the sentence starter provided by the teacher (“It was very early in the morning when...")), Figure 16. The same could be said for the Christmas story that she compiled using the word processor. This too was a topic that she could write quite easily about.

Christmas

It was very early in the morning when I woke up and went downstairs. I remembered, "All I wanted for Christmas was a tree like." But then I saw that it was made out of cardboard and looked like the real one, and on, and on, and on. It went through the front door, around the floor, and I actually ordered it in a very different street to me.

I looked around and there standing right in front of me was a huge Christmas tree. "Wow" I said. "Look at all those presents!" 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14 presents for me! "Oh no!" I remembered. I ran away from home because of the tracks! Then I looked back, there were no more tracks. That's strange. I looked up and saw lots of birds hanging around one bird. I found out that the one bird had taken all of today's tracks. "I could of eaten that!" said somebody behind the bush. "Who said that?" "Me." I walked to the bush. "Hello! ah, hello! What's your name?" "Rudolf." "Oh, that's a nice name!" "Thank you!" "Why your a reindeer?" "Yes, I know that, do you have any friends?" "Yes, but they're not very nice." "Mmm,

Figure 16 – Student E's second hand written story.

From the final interview, Student E although feeling “great” about using the word processor to help her to write her stories, felt that sometimes she could concentrate longer while using the word processor but sometimes “the person next to you could distract you”. This student was easily distracted and perhaps this is why her second story was relatively short. However, she was one of the last students to complete her first word processed story as she spent more time ‘prettying’ up the pages rather than typing the story.

Student E did not have to worry about the mechanics of her writing as the word processor made it neat for her:

E:- “I like it because... if you’re handwriting some, if you’re handwriting, ummm like a story umm... it might go like downwards (showing the decline in letters on the table, in other words, the letters may slope) and then the next line it might go upwards and it might look a bit messy...you can get stars on the computer and it is all straight...and...and you don’t have to do much work...like if you make a mistake you just press delete, but if ummm, you use the rubber...It might smudge.”

Student E in accordance with the First Steps Writing Developmental Continuum (1994) at the completion of the six week investigation, was, in fact, in the Early Writing Phase of development and displaying the following indicators:

CONTENT AND ORGANISATION

- uses a small range of familiar text forms

- uses a partial organisational framework, eg: simple orientation and story development
- often writes simple recounts of personal events or observation and comment
- uses time order to sequence and organise writing
- is beginning to use some narrative structure
- attempts to orient, or create a context for the reader, but often assumes a shared context
- is beginning to use 'book' language
- has difficulty staying on topic
- is beginning to use written language structures. Has a sense of sentence, ie: writes complete sentences with or without punctuation
- writes in a style that resembles oral language
- includes some dialogue

WORD USAGE

- writes a range of words that are personally significant
- transfers words encountered in talk, or reading, to writing

EDITING

- begins to develop editing skills
- deletes words to clarify meaning
- adds words to clarify meaning
- begins to proofread for spelling errors

LANGUAGE CONVENTIONS

- attempts to use some punctuation
- sometimes uses full stops
- sometimes uses a capital letter to start a sentence
- uses capital letters for names
- attempts use of exclamation marks
- attempts use of question marks
- sometimes uses apostrophes for contractions
- often writes in the first person
- attempts writing in both first and third person
- usually maintains consistent tense

AFFECTIVE

- perseveres to complete writing tasks
- resents interruption
- is preoccupied with a desire to get everything right

PROCESS

- rereads own writing to maintain word sequence

From the checklists conducted at the conclusion of the six week investigation, this student was deemed to be of strong ability in terms of her writing. Both the researcher and the additional researcher agreed 12/12 times for the initial hand written piece, therefore, ensuring a sufficiently reliable measure. The researcher and the additional researcher agreed 11/12 times for the word processed piece with the difference of opinion occurring in the Mechanics (punctuation and capitalisation are used correctly) category.

The classroom teacher viewed Student E's writing ability and attitude towards writing, as having a "creative and imaginative ability" and the teacher said also that it was "a delight to read her stories." The classroom teacher also said that this student's ability and attitude towards computers, was one that was "very bright and creative" and that she was "always eager and keen."

Like the other students, Student E did not like to share a computer as she felt that she could get her story completed a lot quicker if she was able to use her own computer. Student E certainly enjoyed using the word processor as she expressed interest in completing more writing lessons using this device to assist her. She felt that she wrote better stories using the word processor as:

E: ...like you can use different sizes or styles and like, you can instead of just taking, taking your pencil out you can just turn the computer on and go into Story Book Weaver and if your pencil is hiding in your tray, it may take a long time to get it out and Story Book Weaver is ten times as fast.

Student E (in terms of the standardised checklist) was a strong writer in terms of her writing ability by hand. This rating remained consistent for this student's word processed stories, but she did, however, have a couple of problems with her punctuation. It didn't matter which method of story compilation she used, but she enjoyed writing more while using the word processor.

Initially, this student was preoccupied with pictures. However, when it came time for this student to write her second word processed story, she appeared less preoccupied with the pictures and more concerned with writing her story. Although this second story was relatively short, Student E had used far less pictures and had concentrated more on the mechanics of the writing process. Perhaps the novelty of the illustrations wore off. Figure 17 shows the focus of this student during her second word processed story. It was on the sentences that she wrote, rather than on covering her page in objects.



That night, Santa flew through the sky with Rudolph and his other reindeer to Emma's house. Emma was dreaming about Santa.

Figure 17 – Two pages from Student E's second word processed story.



In the morning, Emma went into the lounge room and saw the Christmas tree. Under the Christmas tree were lots and lots of presents! Then her sister came running down the stairs saying, "It's Christmas. It's Christmas!" "I know," Emma said. "Look at all my presents! Look at that box! It's moving!" "Let's open it!" Emma looked inside the box, and there she saw a little puppy. "Oh isn't she cute!"

Figure 17 – Two pages from Student E's second word processed story.

Initially, Student E did not like writing by hand all that much as she felt that she was not neat. She liked being able to type her stories and she enjoyed writing more while using the word processor. While writing by hand, Student E was a strong writer according to the checklist conducted. She remained a strong writer while using the word processor.

Student J

Student J loved playing on computers. He had two computers at home that both had Windows (Microsoft, 1995) and his Dad's computer had internet connections. He liked using the computers to play games on.

From the initial interview, Student J felt “OK” about writing. Sometimes he liked writing lessons if he could write about what he wanted to, in other words, if he had free choice or if he was able to write on his own topic(s). Other times, however, when he had to write about topics selected by his teacher, then he didn’t like writing. He also termed himself a “medium” or average writer who felt that how good he wrote was more important than how much he wrote. He explained this by saying that if he wrote more but he was not a good writer than the writing was no good. This student felt “good” and “bad” about completing writing pieces. He explained his feelings by reverting back to personal selection or teacher selected topics. He felt that if it was a bad piece of writing (one that the teacher had told him to do), then he felt good that he had completed it. However, if it was a personal selection, then he felt happy that he had completed it but he would like to do another writing task as was the case while he was using the word processor.

Also from the initial interview, Student J was very enthusiastic about the prospect of being able to use the word processor to assist him in the compilation of his stories. He said that he liked to use computers to help him write his stories as “you can get good pictures.” This student also felt that his stories were enhanced by good pictures so he was very keen to use Story Book Weaver Deluxe (1994) to make his stories really great. Student J also said that if he had his own computer at school, besides playing games on it he would use it for “typing” during school time. Right from the beginning, this student was more than keen to be let loose on the word processor. He certainly didn’t require any encouragement.

Student J felt that the computer helped him to complete his stories because he didn't have to use an eraser. The computer made his stories neat:

J: It's neater 'cause you don't have to write it and you can put it in every font that you want to.

It also made it professional looking for him so he was not so concerned about the mechanics of his writing as it looked great in the end.

Student J was the sort of person that, if he had the choice, would word process as many things as possible rather than having to write them by hand. This is reflected in his comment:

J: If you didn't know which way the letters were supposed to go, then the computer would do it the right way for you.

He didn't have to be concerned with the mechanics of the writing process while using the word processor to assist him.

He was quite capable of handwriting his stories, but he often did not enjoy this processes as he was restricted to the ideas outlined by his teacher. However, when this student was given free choice of topics, he was quite keen to write. He did not write much though when he was required to hand write his story. Figure 18 is Student J's first hand written story.

When I went to school
I was in the car with my mum.
There I saw a **HUGE** monster
walking down the street and
I was staring at him so he ran
up to the car. (He ^{must not} ^{have} ^{people} ^{staring} at him)."

He jumped on the window
and smashed it and
ripped off my mums head and
threw it out the window and
my car drove over it. Then it
jumped at me but I dodged it.
So I smashed the window and
jumped out of the smashed
window. The monster chased
me. Then I had an idea.
I got a sharp stick and
poked it through the
monster's head and it started
^{dying} dying then it exploded.
If you didn't know, monster
have brains in there head."

Figure 18 – Student J's first hand written story.

Student J, in accordance with the First Steps Writing Developmental Continuum (1994), initially appeared to be in the Conventional Writing Phase, displaying the following indicators:

CONTENT AND ORGANISATION

- uses text forms to suit purpose and audience
 - demonstrates the ability to develop a topic
 - shows evidence of personal voice
- uses simple, compound and extended sentences
- writes a topic sentence and includes relevant information to develop a cohesive paragraph

WORD USAGE

- is beginning to select vocabulary according to the demands of audience and purpose
 - varies vocabulary for interest
 - includes specific vocabulary to explain or describe
 - uses adverbs and adjectives to enhance meaning

EDITING

- edits and proofreads own writing after composing

LANGUAGE CONVENTIONS

- punctuates simple sentences correctly
 - uses capital letters to start sentences
 - uses full stops to end sentences
 - writes apostrophes for contractions
 - maintains appropriate tense

PROCESS

- rereads and revises while composing

From the beginning, this student could not get enough of the word processor. He was more than happy to be seated and working at the word processor for the whole lesson. Student J certainly was very creative with his ideas and wrote quite an

imaginative story (See Figure 19). However, this student was required to share the computer for this first piece and he was more than disappointed when his time was up and he had to swap with his partner. If he could, he probably would have continued on with his story until he completed it and then he would want to start a new one.



**They went everywhere together. They went to the
rainforest.**

Figure 19 – Part of Student J's first word processed story

For the initial word processed story, as shown in Figure 19, Student J and Student L were required to work together (as computers were limited). Even though they did not get the same amount of time individually as the other students to use the word processors, they still managed to complete their stories before any of the other students and they wrote an additional story together. They stayed on task through out each of the sessions and they were very focussed on what they were doing as opposed to what the other students were doing. Student J even changed the font style on each of his pages to make his story a little different from the rest.

From the checklists conducted at the conclusion of the initial writing samples this student was deemed to be of average/strong ability in terms of his writing. Both the researcher and the additional researcher agreed 12/12 for the initial hand written sample, therefore, ensuring a sufficiently reliable measure. Both the researcher and the additional researcher agreed 11/12 times for the initial word processed story with the difference occurring in the Mechanics (punctuation and capitalisation are used correctly) category.

With regards to the attitudes towards word processors and writing from work samples and observations, this student loved using Story Book Weaver Deluxe (1994) to complete his stories. He liked to be able to search the list of objects and insert the pictures that best suited his story (as shown in Figure 20 and Figure 21). He also spent a considerable amount of time matching sounds to those pictures that he used for his story.



They went to Italy.

Figure 20 – Part of Student J's first word processed story.



Rudolph had to run, duck and dodge to get past the two grabbing skeleton's and the raging robot.

Figure 21 – Part of Student J's second word processed story.

When this student was asked about what he thought about while he was writing his stories, he said that he thinks about his story and he said that his ideas for writing come from his head. Student J worked very productively on his own and he certainly could concentrate longer when he was using the word processor as opposed to writing stories by hand.

Once Student J had completed his story using the word processor, he would read through it and change any words that did not look correct. He did this on his own and very rarely used the spell check facility, hence, he misspelled some of the words in his story that he considered correct. But this student was more concerned with the pictures and sounds than on the writing aspect. He appeared to write his story, to enhance the illustrations (see Figure 20 p, 97).

While this student was using pencil and paper, he hurriedly wrote his story and made little changes to it while editing. However, when he was typing his stories, he changed and edited his story constantly to ensure that it was the best story that he could write.

When this student was observed during a writing lesson that was taken by the teacher, Student J wasted the first ten minutes by borrowing a pen from someone to rule up his page, then returning it and then he spent the next five minutes looking around the room as if thinking of what to write. However, once this student was seated in front of the computer, there was no wasted time. He would get started on his story straight away and he would remain on task for the majority of the lesson. Some days, he would type and illustrate several pages of his story, paying meticulous attention to detail, ensuring that all of the objects and characters were the correct size and shape (see Figure 22 below).



Once santa had finished taking all of the christmas presents to all of the kids in the world he had a celebration.

Figure 22 – Part of Student J's second word processed story.

The teacher's comments about Student J were that he possessed a "rich background of vocabulary" and that he "enjoys linking this vocabulary with descriptive sentences." The teacher further commented that this student possessed a "vivid imagination" with "original ideas" which really flowed through in the stories that he wrote over the course of this six week study. In terms of this student's ability and attitude towards computers, the teacher said that Student J was "highly competent, always eager to be extended and challenged."

Student J certainly did not like to share computers because he felt that if you shared "you only have half the time" and he liked to be in control. Even though he worked well with his partner at the computer, he could not stand it when it was not his turn and he would try to take over by saying that he forgot to do certain aspects of his story and would beg his partner to go back to his story so that he would not forget this vital part of information before next session. Sometimes it worked!

From the final interview, Student J did not like writing lessons using pencil and paper. In fact, he "hates it" because "it's not fun." However, when it came to using the word processor to assist him in his story writing, he felt "excellent" about using Story Book Weaver Deluxe (1994). This student also felt that he wrote better stories using the word processor as he said "it's easier to delete, and it's smudge free". Student J also expressed delight in undertaking more writing lessons using the word processor because he wanted to "write a new story."

Also from the final interview, Student J felt that the word processor did affect his writing as he said "because it's neat and the teacher doesn't yell at your printing." He was looking at the word processors' effect more in terms of it's professional looking

finish which a lot of these students were concerned about. Student J also felt that he could concentrate longer while using the word processor rather than with pencil and paper because he wanted to “go onto the next page and do a cool song for it.” This student would select a song to suit each page and often he would select a sound for each of his characters.

In accordance with the First Steps Writing Developmental Continuum (1994) at the completion of the six week investigation, Student J was in the Early Writing Phase of development and displaying the following indicators:

CONTENT AND ORGANISATION

- uses a small range of familiar text forms
 - uses a partial organisational framework, eg: simple orientation and story development
 - uses time order to sequence and organise writing
 - is beginning to use some narrative structure
- is beginning to use written language structures. Has a sense of sentence, ie: writes complete sentences with or without punctuation
 - writes in a style that resembles oral language
 - includes some dialogue

WORD USAGE

- writes a range of words that are personally significant
 - transfers words encountered in talk, or reading, to writing
 - highlights words for emphasis eg: BIG

EDITING

- begins to develop editing skills
 - deletes words to clarify meaning
 - adds words to clarify meaning
 - begins to proof read for spelling errors

LANGUAGE CONVENTIONS

- attempts to use some punctuation
 - sometimes uses full stops (almost always)
 - sometimes uses a capital letter to start a sentence (almost always)
 - uses capital letters for names
 - attempts use of question marks
 - attempts use of exclamation marks
 - attempts writing in both first and third person
 - usually maintain consistent tense
 - writes a title which reflects content

AFFECTIVE

- perseveres to complete writing tasks
- is preoccupied with a desire to get everything right

PROCESS

- rereads own writing to maintain word sequence

From the checklists conducted at the conclusion of the six weeks, this student was deemed to be of strong ability in terms of his writing. Both the researcher and the additional researcher agreed 12/12 times for both this student's hand written and word processed piece, therefore, ensuring a sufficiently reliable measure.

Student J while writing by hand was an average/strong writer according to the checklist conducted. He displayed difficulties in the style and mechanics categories. More specifically, use of figurative language, variety of sentence patterns, spelling, punctuation and standard language. However, while using the word processor, Student J was a strong writer. He improved his use of figurative language, he used a wide variety of sentence patterns, his spelling was excellent and his punctuation and standard language improved greatly. He certainly enjoyed the writing process a lot more and his writing was enhanced when he was able to use the word processor to assist him.

This student certainly produced some excellent work over the six week period of investigation. When it came time to write the final word processed piece, Student J was working on his own and he spent almost the whole lesson, every time, on task and completed a fabulous story. He was always so positive about writing when it can to using the word processors, he couldn't get enough. Even at the completion of the six weeks he wanted to know if more work could be done using the word processors.

Student L

Student L liked ten pin bowling, fishing and roller blading. He had a Nintendo 64 (a game machine) and he had a computer which he used for playing games and drawing.

From the initial interview, Student L didn't like writing all that much because it gave him a "sore hand." This student was a little preoccupied with the neatness aspect of writing as he didn't think that he was a good writer because he didn't like his handwriting. This student did, however, like writing lessons as sometimes he got to type them up when they were completed. Student L also thought that both how good his writing was and how much he wrote were equally important. In terms of completing work, this student felt "very glad" once he had fulfilled his writing tasks.

Also from the initial interview, this student said that he liked using computers and that he felt "great" about using a computer to help him write his stories. He also said that he would use a computer for "learning and typing" if he could have his own computer at school.

Student L was a very conscientious student that always focused on what he was doing and tried his best in every aspect of the writing process. Whether it was writing his stories by hand or typing them with the assistance of the word processor, he stayed on task for the majority of each session and tried to accomplish as much as possible.

From the initial writing sample, this student appeared to be limited by the paper and pencil method of writing and felt that he was not a good writer. He didn't appear to be one who enjoyed the writing process and it seemed as though he was limited by the boundaries of the page as they offered no motivation nor inspiration. He wrote a fairly simplistic story that displayed only limited creativity and imagination. This is demonstrated in Figure 23.

On my way to school.
 On my way to school
 today when I walked
 out of the frontdoor I
 saw an alien ship on top
 of a car. An alien came
 out and said, I want
 a house to eat. Somehow
 I had to stop it
 so I picked up a brick
 from a smashed
 house and got onto the
 top of my house and
 threw the brick at the
 alien and it said, "who
 did that" and became
 a giant alien so I
 threw another brick
 at it and it vanished
 and I finally got to school.

Figure 23 – Student L's first hand written story.

This student was very quiet by nature and so he didn't appear overly enthusiastic about the prospect of using word processors to compile stories. He was quite timid at first and he let Student J take over somewhat as these two students were required to share a computer. However, towards the end of this first word processed story, Student L had got the hang of things and he was challenging Student J for supremacy. At this stage, he was more at home in front of a computer using the word processor to assist him in the compilation of his story rather than the more traditional method.

Student L, in accordance with the First Steps Writing Developmental Continuum (1994), initially appeared to be in the Conventional Writing Phase, displaying the following indicators:

CONTENT AND ORGANISATION

- uses text forms to suit purpose and audience
 - demonstrates the ability to develop a topic
 - shows evidence of personal voice
- uses simple, compound and extended sentences
- writes a topic sentence and includes relevant information to develop a cohesive paragraph
 - orders ideas in time order or other sequence such as priority order
 - links ideas coherently in whole texts

WORD USAGE

- is beginning to select vocabulary according to the demands of audience and purpose
 - uses words that adequately convey meaning but lack variety
 - provides sufficient information but little elaboration

EDITING

- edits and proofreads own writing after composing

LANGUAGE CONVENTIONS

- punctuates simple sentences correctly
 - uses capital letters to start sentences
 - uses full stops to end sentences
 - sometimes uses commas
 - writes apostrophes for contractions
 - maintains appropriate tense

PROCESS

- rereads and revises while composing

From the checklists conducted at the conclusion of the initial writing samples this student was deemed to be of average/strong ability in terms of his writing by hand, yet deemed to be strong while writing using the word processor. Both the researcher and the additional researcher agreed 12/12 for the initial hand written sample, therefore, ensuring a sufficiently reliable measure. Both the researcher and the additional researcher agreed 11/12 times for the initial word processed story with the difference occurring in the Mechanics (punctuation and capitalisation are used correctly) category.

From data gathered through work samples and observations, Student L had a positive attitude, at the end, towards word processors and writing. He enjoyed writing a lot more when he was able to use Story Book Weaver Deluxe (1994). He also liked the backgrounds/pictures that this package provided.

When asked where his ideas for writing come from, he said that they came from “the pictures” that Story Book Weaver Deluxe (1994) provides. His motivation and concentration were held over the course of each lesson as he was able to be constantly involved in his story by consulting the various backgrounds and pictures that he could add to his story. Once he found a suitable picture, he could then incorporate it into his story. Figure 24 shows two pages from this student’s second word processed story. He selected each of the backgrounds to suit his theme and story.



On the way there they saw five green planets and two white planets. They also saw the big dipper. Santa said, "Watch out for that comet."



When they got there they looked around. All they saw were stars. Santa said, "Why are there bridges in space?" The reindeers said, "We don't know."

This student used the word processor's capabilities to his advantage in that on occasion he produced pages ahead of where he was typing, simply by placing in a suitable background and pictures (maybe even just the main character) so as not to lose his train of thought when he went back to his writing the following session. He simply went ahead with the typing of his current page and then saved his work accordingly. When he returned to his work, he typed a page, sometimes two and then he again went ahead to complete a couple of backgrounds to let his train of thought flow. I interpreted this as meaning that he was more suited to using the word processor to compile his stories as he is not able to achieve the same result with pencil and paper and perhaps the ideas are stilted while the hand is catching up with the writing. He was very versatile in his work habits.

When this student was observed during a writing lesson that was taken by the teacher, Student L ruled up his page and got started straight away. He achieved a great deal of writing over this session. When he was placed in front of the computer, he worked equally as hard to ensure that he achieved as much as possible throughout the lesson. This student also paid meticulous attention to detail, ensuring that all of the objects and characters were the correct size and shape which is demonstrated in Figure 25.



One foggy christmas eve as santa and percy the penguin were getting ready to deliver toys to all of the world santa noticed something was wrong. He quickly noticed that the moon was missing.

Figure 25 – Part of Student L’s second word processed story.

From the final interview, Student L felt “OK” about writing lessons using pencil and paper because sometimes he got to decide on what he wanted to write. However, when it came to using Story Book Weaver Deluxe (1994), he felt “excellent” about typing his story because he thought that it was “easier to write”. Student L further commented that he thought that he wrote better stories using the word processor than with the traditional paper and pencil method because “you can look at the pictures.” Student L felt that the pictures enhanced his stories and so he felt that because the word processor could produce better pictures than his stories were better. This student really did have a very positive attitude towards word processing and writing.

From the final interview, Student L liked using the word processor “because it is easier to write.” He was able to allow his thought processes to flow. He felt that the

word processor affected his writing “because it’s neat” and he also felt that he could concentrate longer using the word processor rather than paper and pencil “because it is easier.” Student L also mentioned that he would like to do more writing lessons using the word processor because “it has better pictures.”

In accordance with the First Steps Writing Developmental Continuum (1994) at the completion of the six week investigation, Student L was, in fact, in the Early Writing Phase of development and displaying the following indicators:

CONTENT AND ORGANISATION

- uses a small range of familiar text forms
 - uses a partial organisational framework, eg: simple orientation and story development
 - uses time order to sequence and organise writing
 - is beginning to use some narrative structure
 - is beginning to use ‘book’ language
- is beginning to use written language structures. Has a sense of sentence, ie: writes complete sentences with or without punctuation
 - includes some dialogue
 - joins simple sentences (often overusing the same connectors, eg: ‘and’)

WORD USAGE

- writes a range of words that are personally significant
 - transfers words encountered in talk, or reading, to writing

EDITING

- begins to develop editing skills
 - deletes words to clarify meaning
 - adds words to clarify meaning
 - begins to proofread for spelling errors

LANGUAGE CONVENTIONS

- attempts to use some punctuation
- sometimes uses full stops
- sometimes uses a capital letter to start a sentence
- uses capital letters for names
- attempts the use of question marks
- sometimes uses apostrophes for contractions
- often writes in the first person
- attempts writing in both first and third person
- usually maintains consistent tense
- writes a title which reflects content

AFFECTIVE

- perseveres to complete writing tasks
- resents interruption

PROCESS

- rereads own writing to maintain word sequence

From the checklists conducted at the conclusion of the six weeks, this student was deemed to be of average/strong ability while writing by hand, yet strong ability while writing using the word processor. Both the researcher and the additional researcher agreed 12/12 times for the initial hand written sample, therefore, ensuring a sufficiently reliable measure. Both the researcher and the additional researcher agreed 11/12 times for the initial word processed story with the difference occurring in the Mechanics (punctuation and capitalisation are used correctly) category.

The teacher's comments about Student L were that his "vocabulary reflects the range of books read." The teacher also commented that this student had a "well constructed, free flowing writing style" that he maintained while using the word processors. In terms of this students' ability and attitude towards computers, the

teacher said that Student L was “confident in skills but sometimes lacks confidence within himself” therefore being quite quiet and withdrawn. The teacher further went on to say that Student L was “a very bright and capable student.” This was also reflected in his use of the word processors as that he required little attention and supervision and he was quite content to work on his story without any interruption from anyone during the lessons.

Although he worked well with his partner, he did not really like to share the computer because he felt that he did not “get enough time” during the session to complete enough work. He also was dominated by his partner who tried to always take control by trying to type words or by showing Student L where letters were if he took too long to locate them or he would tell him where to put his pictures or even try to tell Student L which font he should use. Nevertheless, he constructed his stories very well even though often he was hampered by a limited time frame.

Student L while writing by hand was an average/strong writer according to the checklist conducted. He displayed weaknesses, on occasion in the areas of ideas and organisation, more specifically in the creativity of ideas, the development of ideas and topic sentences. While using the word processor, however, Student L was a strong writer. He displayed improvement in the categories of creativity of ideas, the development of ideas and topic sentences progressing from the average category to the strong category. He displayed a lack of confidence in the areas of spelling and punctuation but the word processor was able to assist him with the spell check facility. Student L certainly became more confident and wrote better stories with the assistance of the word processor.

Student L certainly did progress very well in terms of word processing confidence over the six weeks. He preferred to partake in writing lessons when he was able to use the word processor to assist him as he wanted to do more writing lessons using this method of story compilation. If he had a choice now, he would probably stick to using the word processor to assist him with his story compilation rather than having to labor over his work and try to write as good a story using the paper and pencil method.

Student S

Student S enjoyed playing netball, tee-ball and softball. When she grows up she wanted to be a singer or a famous ice skater. She had a computer at home which she used for “painting, writing, drawing, playing and colouring.” Student S also “likes going to school”, reading and she liked writing because she was able to express her feelings. She also felt that she was a good writer as she “never makes mistakes.”

From the initial interview, Student S was the only one who really enjoyed writing and the writing process. She liked writing because, as she put it, she could “express her feelings.” Also too, this student really enjoyed writing lessons as she could learn to “write more and more and more.” When it came to quality and quantity, Student S felt that both how good her writing was and how much she wrote were important as writing was important to her in all aspects. When this student had completed a piece of writing, she felt, “stressed out, tired and happy.” This student really liked to write. Perhaps it could be linked to her neat handwriting which is constantly praised by her teacher?

Also from the initial interview, Student S, when asked if she liked computers she replied, “I do! Because you can write!” Right from the outset, this student enjoyed writing for pleasure as well as to complete a set task. Even when using the computer, this student felt “happy” about using a word processor to help her to write her stories because she felt that it “didn’t take as long” as she perceived herself as a competent typist.

From the initial writing sample, Student S really enjoyed the writing process, even using paper and pencil although, the initial writing sample was fairly simplistic and limited in terms of creativity which is demonstrated in Figure 26 below. However, after completion of the first word processed story, this student displayed her creative ability fairly well and appeared to now prefer the word processing method of story compilation to the more traditional method that she was so used to.

On my way to school

On my way to school I triped over a rock and grazed my knee. I jumped up. I dropped my St Steven sport bag and school bag. I ran home but unfortunately I bumped into the wall and hurt my head but I didn't mind. I just jumped up and ran to my class. As soon as I got there I ^{realizes} ~~realized~~ my class had turned into a crystal cave. I found 2 silver crystals 3 gold ones 4 blue ones and 9 purple ones the total is 18 crystals. It was freezing cold. I put my coat ^{on} the coat rack and found 5 more. I put them all in my ^{rocket} ~~poset~~ and sat down. I worked hard all day and I never don't.

Figure 26 – Student S's first hand written story.

Student S, in accordance with the First Steps Writing Developmental Continuum (1994), initially appeared to be in the Conventional Writing Phase, displaying the following indicators:

CONTENT AND ORGANISATION

- uses text forms to suit purpose and audience
- demonstrates the ability to develop a topic
- shows evidence of personal voice

- considers the needs of audience and includes background information
- uses simple, compound and extended sentences
- writes a topic sentence and includes relevant information to develop a cohesive paragraph
- orders ideas in time order or other sequence such as priority order
- links ideas coherently in whole texts

WORD USAGE

- is beginning to select vocabulary according to the demands of audience and purpose
- varies vocabulary for interest
- includes specific vocabulary to explain or describe

EDITING

- edits and proofreads own writing after composing

LANGUAGE CONVENTIONS

- punctuates simple sentences correctly
- uses capital letters for proper nouns
- uses capital letters to start sentences
- uses full stops to end sentences
- writes apostrophes for contractions
- maintains appropriate tense

PROCESS

- rereads and revises while composing

From the checklists conducted at the conclusion of the initial writing samples, this student was deemed to be of strong ability in terms of her writing. In terms of the checklist for both this student's hand written and word processed piece, both the researcher and the additional researcher agreed 12/12 times, therefore, ensuring a sufficiently reliable measure.

From the final interview, Student S felt that using the word processor to compile her stories did effect her writing as she felt that her spelling was improved as she could use the spell check facility. She also felt that she could concentrate longer using the word processor rather than pencil and paper because word processing her stories was easier. This student felt that she wrote better stories using the word processor as she had help from the package that was used (the spell check facility). She also expressed delight in wanting to do more writing lessons using the word processor because of the pictures that were available to her.

In accordance with the First Steps Writing Developmental Continuum (1994) at the completion of the six week investigation, Student S was in between the Early Writing Phase of development and the Conventional Writing Phase of development and displayed the following indicators:

CONTENT AND ORGANISATION - EARLY WRITING PHASE

- uses a small range of familiar text forms
 - uses a partial organisational framework eg: simple orientation and story development
 - uses time order to sequence and organise writing
 - is beginning to use some narrative structure
 - is beginning to use 'book' language
- is beginning to use written language structures. Has a sense of sentence, ie: writes a complete sentence with or without punctuation
 - includes some dialogue

WORD USAGE

- writes a range of words that are personally significant
 - transfers words encountered in talk, or reading, to writing

EDITING

- begins to develop editing skills
 - deletes words to clarify meaning
 - adds words to clarify meaning
 - begins to proofread for spelling errors

LANGUAGE CONVENTIONS- CONVENTIONAL WRITING PHASE

- punctuates simple sentences correctly
 - uses capital letters for proper nouns
 - uses capital letters to start sentences
 - uses capital letters for titles
 - uses full stops to end sentences
 - uses question marks correctly
 - sometimes uses commas
 - writes apostrophes for contractions
 - writes effectively in both first and third person

AFFECTIVE

- writes for enjoyment
- writes to get things done

PROCESS

- rereads and revises while composing

From the checklists conducted at the conclusion of the six week period, this student was deemed to be of strong ability in terms of her writing. From the checklist conducted for both this student's hand written and word processed piece, both the researcher and the additional researcher agreed 12/12 times, therefore, ensuring a sufficiently reliable measure.

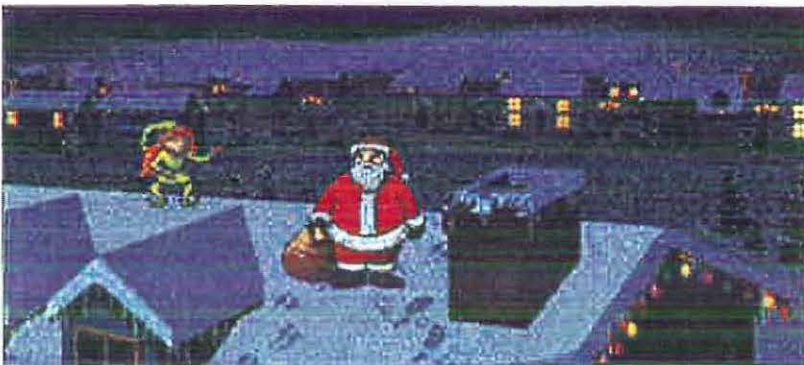
Regarding the attitudes towards word processors and writing, Student S would work quite contently by herself and would seldom distract those around her. There was no doubt that her stories showed her enthusiasm towards the writing process and the excitement of completing a story with the help of the word processor were displayed at the completion of each of her stories by the desire to print them and display them.

Student S was very content to use the word processor. She was able to disconnect the mouse and share with a partner if hers was not working properly and she would also move the keyboard around to suit her. She also felt that she was a good typist as she knew where most of the letters were on the keyboard. Although she knew about the touch typing method, she would often start on the home row keys but then she would revert back to the more familiar method of hunt and peck. Also too, Student S had no difficulty going between the pages to ensure comprehensibility, stating, "First I have to see what I wrote on the end page so it can make sense." She was referring to the characters in her story.

Student S produced stories that were more extensive and more creative while using the word processor when compared to her hand written versions and an example of this is displayed in Figure 27. She was extended while using the word processor, in that, she was able to let her ideas flow and not be hampered by the necessity to concentrate on the neatness of her handwriting as displayed in Figure 28. She also felt that she could type her stories faster than she could write them.



When the evening came Santa said to his elf Claudia, "I think we should go to Linda's house first." "So do I," said Claudia.



"Well here we are," said Santa. "I hope no one sees me," said Santa. "I doubt it," said Claudia.



"I succeeded in getting down." "Oh good," replied Claudia. "Now, I wonder what I've got for Linda?" said Santa.



(9 hours later) It was morning. Linda was running out of her bedroom. For Christmas Linda got a doll, a lunch box, a baby doll and a mystery present. What was the mystery present?

Figure 27 – Part of Student S's second word processed story.

Christmas

It was very early in the morning when I woke.
I was a year old then. I was in bed.
I jumped out of bed and ran into my
mom's room. I was on my hands and knees
and I said "MOM!" and yelled "MOM!"

Mom said it's 11:00 in the morning. She came!
Please! please! what said mom may I open
my presents? "yes you may!" thank you!
I ran out of Mom's room and into the
living room. Wow! I cried, look at all these
presents! I said

to be continued ~~~~~

Figure 28 – Student S's second hand written story.

When this student was observed during a hand writing lesson that was taken by the teacher, Student S started well. She ruled up her page, wrote down the sentence starter and got down to work, but only for about five minutes before getting distracted. I observed that she was able to concentrate a lot longer while using the word processor to complete her stories. It appeared as though she was more motivated to do them.

Student S improved her editing skills as she did not like making mistakes and she felt that this was why her writing was so good. However, while using the word processor, it picked up flaws in her theory and proved to her that she was not always correct when it came to spelling. This stunned this student somewhat and when she was using the spell check facility, she was often uncertain of how a word was spelt even when she was able to select from the list provided by the word processor.

The teacher's comments about Student S were that she "is able to write a topic sentence and include relevant information to develop a cohesive paragraph. She is improving in attempting to correct punctuation and misspelt words." These aspects were also displayed while Student S was using the word processor. She would read and edit her work, sometimes at the completion of a sentence, sometimes at the completion of a whole page. The classroom teacher also said that Student S was "eager and keen in everything she undertakes" and she certainly was not restricted about trying things out using the word processor.

From the final interview, Student S thought that writing lessons using pencil and paper were now just "OK." However, when she was asked about using the word processor to help her to write her stories she said that she enjoyed it "because it is fun." Initially, this student felt that she wrote equally as good stories using pencil and paper

as she could using the word processor. However, at the completion of the six week program, when this student was again interviewed, she thought that she wrote better stories using Story Book Weaver Deluxe (1994). This student also said that she would like to do more writing lessons using this program “because of the pictures” that she could access. She thought, as some of the other students did, that the pictures made their stories.

Like all of the other students, Student S didn’t like to share a computer as she felt that “it takes longer” to complete her story. She was the sort of person that could spend hours just typing and illustrating her story, working on it until it was completed. She was very task oriented and when she was sharing her computer, she was dominated by her partner and was forced to work to a limited time frame which did not allow her to finish everything that she wanted to write.

Student S was a very conscientious student that remained on task for the majority of each session, regardless of it being a hand writing session or a word processed session. She got a lot out of the word processing sessions and her ideas were enhanced by the pictures and backgrounds that were supplied by the word processing package that was being used. Figure 29 shows part of Student S’s first word processed story.



Linda spent all her time with Teeka. After school Rebecca, Linda's best friend, asked her over but Linda said, "Sorry I'm playing with Teeka today."



The next day Linda went down to the lake to see the swans swim. At the lake Linda saw Rebecca. "Hi Bec," said Linda. "Want to come to my house today?" "Sure!" replied Rebecca. "Ok! Let's go."

Figure 29 – Part of Student S's first word processed story.

Student S, regarding her writing by hand, was a strong writer according to the checklist conducted. This student displayed weaknesses in the areas of ideas and style, more specifically, creativity of ideas, the development of ideas and variety of sentence patterns. While using the word processor, Student S was again judged a strong writer, however, showing improvement in her areas of weaknesses.

At the beginning of this study, Student S enjoyed writing for pleasure as well as for purpose using the more traditional method of pencil and paper. However, throughout this investigation, she discovered how much easier it was to use the word processor and towards the end of the six week period, she wanted to do more writing lessons using the word processor rather than her once preferred method of pencil and paper.

Summary

All of the students that participated in this investigation were very keen to use a word processor before, during and after this investigation and often had them turned on first thing in the morning. A few of the students said that sometimes in their free time, they would work on their stories that they were compiling during the investigation. Having such a willingness to use the word processors and the package that was being used, the students maintained their interest and the package kept the students motivated by allowing them the usage of several different backgrounds and numerous pictures that all of the students re-sized to fit the perspective of the page and the other surrounding objects. Also, if the students could not delete enough of the picture that was selected or re-size the picture to fit, it was deleted and another object was selected. For example, Student L enlarged the picture of Santa Claus in his Christmas story as initially, he was smaller than the reindeer that was already on the page.

One advantage of using the package of Story Book Weaver Deluxe (1994), which the students had used before, was that they were not interested solely on the numerous images, sounds, music and backgrounds that were available to them. Students had some knowledge of the images that were available to them so instead of wasting time

searching through the numerous pages, they were able to focus on the more important aspect of story composition, the written component of the story.

The students were very preoccupied with how long their stories were. They were always comparing how much they had written:

A: I'm up to page five now
S: So am I
D: I'm up to page seven
S: So am I
B: I'm up to page six
L: Is this your last page?
J: No
L: How much more have you got to do?
J: Probably one
S: How many pages have you done J?
J: Seven
S: I've done nine
D: I've done eleven, I've done eleven pages
J: Look how much writing I've done
A: You haven't done much at all
L: I've done more than you

It was as if the students were competing against each other to see who could write the longest story.

If the students had to do writing lessons just with pencil and paper, they would all like to do less except for Student S who would like to do more. She enjoyed writing no matter what. However, when the students were asked about writing lessons using the word processor, they all said that they would like to do more. When asked why they replied:

E: We like it
D: It's fun
B: It is fun
A: It is ten times faster
J: It is ten times faster, it had better pictures...

A: And it has better than the ones you draw

J: Yeh and you get music

E: And you can have better writing

Figure 30 presents a summary of the results for each of the seven students for the measures of First Steps, change in attitude and checklist information.

St.	FIRST STEPS PHASE		CHANGE IN ATTITUDE	CHECKLIST	
	INITIAL	FINAL		INITIAL	FINAL
A	Initially appeared to be in the Conventional Writing Phase of Development.	At completion of investigation, Student A was in the Early Writing Phase of Development.	Initially, Student A possessed quite strong feelings of distaste towards writing. However, at the completion of this six week period, this student wished to do more writing lessons using the word processor.	<i>Hand Writing:</i> Strong <i>Weaknesses:</i> Mechanics (Punctuation & capitalisation are used correctly) <i>Word Processing:</i> Strong <i>Weaknesses:</i> None	<i>Hand Writing:</i> Strong <i>Weaknesses:</i> Mechanics (Most words are spelled correctly) <i>Word Processing:</i> Strong <i>Weaknesses:</i> None
B	Initially appeared to be in the Conventional Writing Phase of Development	At completion of investigation, Student B was in the Early Writing Phase of Development.	Initially, Student B felt that she was not good at writing as she could not write neatly. At the completion of this six week period, this student enjoyed completing her stories using the word processor.	<i>Hand Writing:</i> Average/Strong <i>Weaknesses:</i> Style & Mechanics (Variety of sentence patterns & Punctuation) <i>Word Processing:</i> Average/Strong <i>Weaknesses:</i> Organisation, Style & Mechanics (Organisational pattern, ideas in logical order, variety of sentence patterns, punctuation)	<i>Hand Writing:</i> Average/Strong <i>Weaknesses:</i> Ideas, Organisation, Mechanics (Development of ideas, organisational pattern, spelling and punctuation). <i>Word Processing:</i> Average/Strong <i>Weaknesses:</i> Style & Mechanics (Choice of words, figurative language, punctuation)
D	Initially appeared to be in the Conventional Writing Phase of Development	At completion of investigation, Student D was in the Early Writing Phase of Development.	Initially, Student D didn't think that she was a good writer as she was not neat, expressing distaste in her handwriting. At the completion of the six weeks, this student enjoyed using the word processor to assist in her story compilation and she appeared to enjoy the writing task a lot more using this device.	<i>Hand Writing:</i> Weak/Average <i>Weaknesses:</i> Ideas, Organisation, Style, Mechanics (Creative ideas, development of ideas, choice of words, figurative language, sentence patterns, punctuation) <i>Word Processing:</i> Average <i>Weaknesses:</i> Organisation, Mechanics (Presentation of ideas, correct spelling of words, punctuation and capitalisation)	<i>Hand Writing:</i> Average <i>Weaknesses:</i> Ideas, Style, Mechanics (Development of ideas, figurative language, spelling, punctuation and capitalisation). <i>Word Processing:</i> Average <i>Weaknesses:</i> Ideas, Organisation, Mechanics (Creativity of ideas, organisational pattern, ideas in logical order, spelling & punctuation).

E	Initially appeared to be in the Conventional Writing Phase of Development	At completion of investigation, Student E was in the Early Writing Phase of Development.	Initially, Student E did not like writing by hand all that much as she felt that she was not neat. She liked being able to type her stories and she enjoyed writing more while using the word processor.	<i>Hand Writing:</i> Strong <i>Weaknesses:</i> None <i>Word Processing:</i> Strong <i>Weaknesses:</i> Mechanics (Spelling, punctuation and capitalisation)	<i>Hand Writing:</i> Strong <i>Weaknesses:</i> None <i>Word Processing:</i> Strong <i>Weaknesses:</i> Mechanics (Punctuation and capitalisation)
J	Initially appeared to be in the Conventional Writing Phase of Development	At completion of investigation, Student J was in the Early Writing Phase of Development.	Initially, Student J did not really enjoy writing his stories by hand. If he had free choice of what to write, then he enjoyed the writing process more than if he was allocated a topic. Student J was very enthusiastic when writing his stories using the word processor. If he had the choice, he would word process as many things as possible.	<i>Hand Writing:</i> Average/Strong <i>Weaknesses:</i> Style & Mechanics (Choice of words, figurative language, spelling, punctuation & standard language) <i>Word Processing:</i> Average/Strong <i>Weaknesses:</i> Mechanics (Punctuation & capitalisation)	<i>Hand Writing:</i> Average/Strong <i>Weaknesses:</i> Mechanics (Spelling, punctuation and capitalisation) <i>Word Processing:</i> Strong <i>Weaknesses:</i> None
L	Initially appeared to be in the Conventional Writing Phase of Development	At completion of investigation, Student L was in the Early Writing Phase of Development.	Initially, Student L did not like writing as it gave him a “sore hand”. He was also preoccupied with the neatness of his handwriting and said that he was not a good writer as his handwriting was not neat. Student L felt excellent about being able to use the word processor to help him write his stories. He enjoyed writing a lot more when he was able to use the word processor.	<i>Hand Writing:</i> Average/Strong <i>Weaknesses:</i> Ideas & Organisation (Creativity of ideas, development of ideas) <i>Word Processing:</i> Strong <i>Weaknesses:</i> Mechanics (Punctuation and capitalisation)	<i>Hand Writing:</i> Average/Strong <i>Weaknesses:</i> Ideas (Development of ideas) <i>Word Processing:</i> Strong <i>Weaknesses:</i> None
S	Initially appeared to be in the Conventional Writing Phase of Development	At completion of investigation, Student S was in between the Early Writing Phase of Development and the Conventional Writing Phase of Development.	Initially, Student S enjoyed writing by hand as she was able to express her feelings. This student also enjoyed writing her stories using the word processor. However, while using the word processor, Student S wrote more extensive and creative stories. At the completion of the six weeks, this student felt just “OK” about writing her stories by hand. She felt that she wrote better stories while using the word processor.	<i>Hand Writing:</i> Strong <i>Weaknesses:</i> Ideas & Style (Creativity of ideas, development of ideas & variety of sentence patterns) <i>Word Processing:</i> Strong <i>Weaknesses:</i> None	<i>Hand Writing:</i> Strong <i>Weaknesses:</i> Ideas & Style (Creativity of ideas, development of ideas & variety of sentence patterns) <i>Word Processing:</i> Strong <i>Weaknesses:</i> None

Figure 30 –Summary of Students

Discussion of Figure 30

First steps

Initially, all of the students that participated in this study appeared to be in the Conventional Writing Phase of Development according to the First Steps Writing Developmental Continuum (1994) and based on the students initial pieces of writing.

In accordance with the First Steps Writing Developmental Continuum (1994) at the completion of the six week investigation, six of the seven students were displaying indicators reflective of those in the Early Writing Phase of Development. One of the students was displaying indicators from both the Early Writing Phase of Development as well as from the Conventional Writing Phase of Development which suggested that she was on the cusp between these two phases of development.

Change in attitude

Initially, six out of the seven students did not enjoy writing their stories by hand. Three students felt that they were not good at writing as they could not write neatly, one complained of getting a sore hand while writing stories by hand and two students simply did not like this method of story compilation. The final student did initially enjoy writing stories by hand as she was able to express her feelings.

At the completion of this six week period, all of the students enjoyed using the word processors to assist them in their story development. One of the students wished to do more writing lessons using the word processor, five of the students enjoyed

completing their stories using the word processor and one of the students felt that she wrote better stories while using the word processor.

Checklist information

Initially, while writing by hand, there were three strong writers, three average/strong writers and one weak/average writer. While using the word processor, there were four strong writers, two average/strong writers and one average writer. At the completion of the six week period, while writing by hand, there were three strong writers, three average/strong writers and one average writer. While using the word processor, there were five strong writers, one average/strong writer and one average writer.

Conclusion

This chapter presented results from each of the students and provided an insight into their abilities and attitudes towards writing and word processing. All of the students thoroughly enjoyed using the word processor to assist them in their story compilation and most, if not all of them, would probably choose this method of writing if they could as they all wanted to undertake more writing lessons using the word processor. The students felt that they produced better stories using Story Book Weaver Deluxe (1994), they felt that they could concentrate longer and they all liked the professional looking copies of their stories that the package produced. The students were also extremely taken by the pictures and backgrounds and often felt that these aspects were what made their stories.

CHAPTER FIVE

Research Questions

Introduction

This chapter addresses each of the research questions in turn using results presented in each of the case studies.

Research Question One:

What attitudes do seven Year Three students possess in terms of writing and the writing program currently in place in their classroom?

The Year Three students from this class had a perception about writing mostly in terms of how neat their handwriting was. The students thought that if they had neat handwriting, then their writing was good. The teacher praised the students on having neat handwriting and often discouraged (or appeared to be in the students' eyes) those that had messy writing (Student B said that she always gets a three for handwriting which is average on a scale from one-five, one being the highest and five being the lowest). The students were concerned more with neatness rather than the quality of their writing and what they were writing about.

The students' did not like the traditional writing lessons that took place in the classroom. Some of the students said that they hated these type of lessons because their handwriting was not neat and so they felt they were no good at it. Others said that they didn't like writing lessons as they got a sore hand due to the constant motion required to complete a writing task, along with the re-writing procedures that took

place in their normal writing lessons. One thing that all of the students did agree on was, they all felt some sense of relief when they had completed a writing piece.

Research Question Two:

What attitudes do seven Year Three students possess in relation to the use of word processors and writing?

The classroom teacher had a very high expectation of the students in terms of their neatness of their writing. Consequently, a lot of the students said that they didn't like writing. However, when it came time for them to use the word processor to assist them with their writing, they possessed a very positive attitude towards the word processors and towards writing due to the motivational purposes of the word processing package that was used and the ability of the students to use the backgrounds and pictures that this package had to offer. Also too, the students were left with a professional looking, neatly printed version of their story.

By the end of this investigation, the students certainly were keener to participate in writing lessons using the word processors as opposed to having to labour over them using paper and pencil. Most of the students remained focussed on their writing through out the word processing sessions and they were certainly more task oriented while using the word processors. All of the students wanted to do more writing lessons using the word processors and a lot of them felt that they could type better than they could write. Perhaps this was due to the fact that they did not have to concern themselves with the mechanics of each of the letters as they wrote them. They did not have to space them correctly, keep them all the same size, think about how to

write each individual letter and so on. The computer automatically made the students writing neat and level. All they have to do was push the letter and it appeared on the screen.

The students liked using the word processors to assist them in their writing as they were left with professional looking copies of their work the first time. They did not have to undergo the re-copying and editing processes that was associated with the writing process. The word processor removed a very demanding task so that the students could concentrate on the real task of writing, formulation and recording of their thoughts and information. The word processor got the mechanics right the first time.

Question Three:

How is students' writing development affected when word processors are used?

While the students were writing by hand, they became quite easily distracted and side tracked, even losing interest after a relatively short period of time. However, while the students were using the word processors, they were more than happy to sit and type their stories, often not wanting to go out to recess or lunch. The students were more motivated to stay on task by the options offered by the word processing package.

The students all produced writing that was of a better standard using the word processors as opposed to their hand written pieces that they wrote. They composed longer stories, used a better selection of words and put a lot more thought and detail into the stories that were composed at the word processor.

While using the word processor, the students came to see their writing in a fluid state, being able to alter and change aspects as they pleased. They were able to let their ideas flow with the knowledge that they could go back and change things at a later date. This enabled the students to try things out with the understanding that they could delete them if they were wrong, thus enhancing risk taking behaviour. However, with the traditional method, the students were more concerned about neatness, appearance and getting things spot on the first time so they would not have to re-write it. Hence, all of the students said that they would prefer to use the word processors as opposed to the traditional paper and pencil method.

It was determined that the incorporation of a word processor into the students writing program enabled them to enhance their writing skills. For example, some of the students improved the mechanics of their writing as they could easily go back and change their text with the push of a button. This enabled the students to become more competent at locating their errors that they made. Some of the students even enhanced their writing from being labelled a weak or reluctant writer while writing by hand, to become an average writer while using the word processor. This could be linked to the word processor being more of a motivational tool with the students not being limited by the boundaries of the conventional piece of blank paper.

Conclusion

This chapter examined each of the research questions in an attempt to highlight the main focus of this investigation, what were the effects of incorporating a word processor into the writing program? Word processors made a very positive impact on

all of the students that were involved in this investigation. If the students could choose between composing their stories using the hand written way or using the word processors, they would all choose to use the word processors. The incorporation of word processors into this Year Three classroom resulted in better constructed stories, students' increased motivation to write stories and students' enhanced risk taking behaviour when writing their stories.

CHAPTER SIX

Themes and Discussion of Findings

Introduction

This chapter looks at themes and issues that have arisen throughout this thesis. These include creativity, time management, completion rates and attitudes all are discussed in order for further clarification as to the effects of incorporating a word processor into a writing program.

Effect of Prior Computing Experience

All of the students that participated in this investigation, had some prior experience using computers/word processors through their interaction with school computers or through exploration on their home computer. The students were not hampered in any way while using this writing tool as they all knew how to open files (through locating the correct icon), they possessed knowledge of a keyboard (they were able to use the mouse and the keyboard as effective input devices) and they also knew what the disks were and how to use them to save their stories onto.

Prior computing experience appeared to be advantageous to the students involved in this investigation as they were not overwhelmed by this writing tool. Rather, the students appeared to interact with the computer/word processor easily and without anxiety, which enabled them to be left to their own devices to create, edit and produce their own stories.

Keyboard Skills

The students all possessed quite good keyboarding skills for students that were so young. The insistence from the classroom teacher that the students learn where the keys on the keyboard were certainly enhanced their ability to complete their stories. Although the students did not use any sort of touch typing technique, they felt that their method of hunt-and-peck enabled them to type their stories more quickly and easily without having to make the necessary reaches required with their small fingers.

Prior keyboarding skills assisted the students in this investigation as they were able to concentrate more on what they wanted to say in their stories, rather than on finding the location of keys on the keyboard. If the students did not possess any knowledge of the qwerty keyboard, there was a chance that they would lose their train of thought or ideas while trying to locate the appropriate keys in which to type the individual letters of the words (however one student used pictures as a means of keeping his train of thought!). This could have led to the students not wanting to use the word processors due to the time consuming nature of the input process.

The classroom teacher took the students for computing and she ensured that the students learnt and practiced correct keyboarding techniques as she was not a competent typist and she wanted to make sure that her students were. Almost all of the students felt that they were competent typists. Student B started off with her fingers on the home row keys and proceeded to press the buttons down with the correct fingers. However, as the lesson progressed she resorted to the more comfortable method of 'hunt and peck'. Student S seemed very familiar with the keyboard initially and knew where the majority of the keys were. Generally, the students had a tendency

to look down at the keyboard but this didn't seem to hinder their typing ability.

Overall the students tended to type with their dominant hand.

The Effect of Being Able to Use Pictures

The word processing package (Story Book Weaver Deluxe, 1994) that was used throughout this investigation provided the students with 1,600 story images and "20,000 scene, colour, and pattern combinations" (Story Book Weaver Deluxe, 1994). The students were highly motivated by this package as they felt that these pictures and backgrounds enhanced their stories by making them look more professional.

The students' inspiration for their stories often came from Story Book Weaver Deluxe (1994), not only for the use of pictures to enhance their stories, but the students found that the many images that this package provided assisted them when they became stuck for ideas or for what to do next in their stories. The pictures provided the students with a window of opportunity to carry on with their stories when their creative thought processes were taking a break.

Change in Attitudes

The students' attitudes towards writing and the writing process changed throughout the period of this investigation. At the start, simply mention the word writing and the students cringed with distaste. At the end, however, when the students were able to use the word processor to assist them in their story development, they could not get enough. They began to enjoy the writing process due to the ease with which the word processor enabled them to complete the writing tasks.

First Steps as a Measure

The First Steps Writing Developmental Continuum (1994) was a measurement tool implemented to determine where the students were located in their writing development. This tool enabled the students to be effectively placed into a phase of development and provided a measure as to what could be expected of the students regarded their writing.

For this investigation, the students all appeared to initially be in the Conventional Writing Phase of Development in accordance with the pieces of writing that the students had produced prior to this investigation taking place. However, after closer observation of the students abilities throughout the writing process and upon examination of their final writing pieces of work, most of the students were, in fact, in the Early Writing Phase of Development. Only Student S appeared to be on the cusp between the Early Writing Phase of Development and the Conventional Writing Phase of Development.

Checklist as a Measure

The checklist that was applied throughout this investigation permitted an effective comparison to be made between the students' hand written samples of work and their word processed stories. This checklist enabled the students to be classified as either, strong, average or weak in terms of their writing ability. Applying the assistance of a second researcher enabled this evaluation of each student to be reliable as the researcher and the additional researcher had to agree 10/12 times for a result to be obtained.

Once it was determined if the students were strong, average or weak for their hand written stories, a comparison could then be made to determine if the students result had improved or decreased with the incorporation of the word processor into the writing program.

Completion Rates – Did the Students Achieve More Using the Word Processor?

The word processor enabled the students to complete more of their stories during the time that was allocated to them. The students all felt that they could type faster than they could write so they were able to formulate their ideas easier while using the word processor. The students did not have to be concerned with the presentation of each individual letter in their stories as the word processor produced them correctly, neatly and all the same size and height so they only needed to focus on what they wanted to write.

The students completed longer stories while using the word processor as Story Book Weaver Deluxe (1994) kept them motivated and interested in the task at hand. The students also came to understand that they could go back through their stories at any time to change any aspect of their story they did not like easily and quickly. This led to the students completing their word processed stories quicker than their hand written versions as the students were free to put their thoughts down without having to be concerned about editing and re-writing process, as with hand written stories.

Effect on Enjoyment and Confidence

The word processor had a huge impact on the students enjoyment and confidence towards writing. While writing by hand, a majority of the students displayed distaste towards the very idea of having to write stories. However, while using the word processor, the students all thoroughly enjoyed the writing process and they often did not want to go out to recess or lunch when the bell was sounded.

The students would often have the computers turned on first thing in the morning. They enjoyed typing stories using Story Book Weaver Deluxe (1994) so much that they often would choose to write alternative stories in their free time. Most of the students that participated in this investigation would probably choose this method of writing if they could as they all wanted to undertake more writing tasks using the word processor.

Effects on Rate of Proof Reading/Editing/Spelling/Mechanics

With the knowledge that the students could go back and forward through their stories, they were certainly more keen to proof read and edit their stories. They knew that they could do so quite easily and not be forced to labour over them and painstakingly rewrite them.

The students became quite proficient at going through each of their pages, reading them through and changing words that they did not like. Also too, the students were able to use the spell check facility that Story Book Weaver Deluxe (1994) provided so they were assisted while searching through their stories for spelling

mistakes. The students simply would work on their stories, typing the words how they thought they should be spelt and then use the spell check facility to get the words right.

Neatness

The neatness aspect was a huge issue for all of the students as the final appearance of their work mattered a great deal to the classroom teacher as well. The students felt that they didn't write good stories because their handwriting wasn't neat. So not only were the students having to deal with developing their ideas in a story, the mechanics and organisation of the words but also on how neat each individual letter was recorded down on the page.

The word processor certainly changed the students' perspective towards the writing process. They no longer needed to be indulgent on the neatness aspect of their writing, rather shifting the focus to the ideas contained in their story with the knowledge that the word processor would make it neat for them. The students were all proud of the professional looking copies of their stories and they were very keen to show their parents and friends what they had achieved using the word processor.

Creativity

The students appeared to be more creative when it came time for them to write their stories with the assistance of the word processor. While writing stories by hand, the students were exposed only to a blank piece of paper looking up at them, offering no motivation nor inspiration to write. They were required to rely solely on their

background knowledge and personal experiences. However, while using the word processor, the students were exposed to a myriad of images and sounds to enhance their creative thought processes. The resulting stories that were completed using the word processor were certainly more creative and more enjoyable to read.

Time Management

There was a marked difference in the students' time management skills throughout this investigation. While writing by hand, the students that participated in this study would procrastinate by borrowing pencils and erasers. They would spend time slowly ruling up their page or looking around the room (as if searching for inspiration) prolonging the inevitable story completion for as long as possible. When the students finally started writing, they would remain on task for only around five-ten minutes before becoming easily distracted.

Time management while using the word processor was a different story. The students when directed to the word processors, would turn them on and open their story file straight away and get stuck into their narrative as soon as possible. There was no procrastination, no uncertainty, the students simply wanted to write. They were all highly motivated by Story Book Weaver Deluxe (1994) and would often remain on task for the majority of the writing session.

The Software Package

The students that participated in this study were all familiar with Story Book Weaver Deluxe (1994) as they had used it often throughout their past two years of school. They were not entirely distracted by the numerous pictures/backgrounds nor immersed in the sounds that this package provided. Most of the students used these facilities to enhance their stories. If the students were not familiar with this package, there could have been a chance that they would not achieve a great deal of writing, rather be taken by the pictures and sounds that are so appealing. Their familiarity of this package ensured that the students writing development was affected positively by the incorporation of the word processor.

Boy/Girl Difference

The stories that were completed by the students were not gender specific. The students were all given the same writing tasks, regardless of their gender and the students that shared the computers were of the same gender. The stories that were completed by the students were of equal merit. The girls didn't produce better stories than the boys and the boys didn't produce better stories than the girls. The effect of prior computing experience related to whether the students had a home computer, not the gender of the students themselves. This gender specific issue was not raised at all during this investigation. The students were evaluated regarding their writing abilities not their gender.

Conclusion

This chapter discussed some common themes that have arisen throughout the various chapters of this thesis. The following chapter will present some general findings from this thesis in relation to previous documentation regarding writing and word processors.

CHAPTER SEVEN

Conclusion To Thesis

This investigation has demonstrated that “technology can be a powerful tool for students in the writing process” (Klenow, 1992, p.61), showing that the word processor improved students’ quality of writing, a view that is substantiated by Snyder (1993) and Owston & Wideman (1997). The word processor assisted the students by enhancing their creativity, keeping them motivated, improving their style, and producing a more comprehensive narrative. As Bangert-Drowns (1993) discovered in their overview of twenty-eight studies that they obtained, almost two-thirds of which, “concluded that access to word processing during writing instruction improved the quality of students’ writing” (p.77). The inclusion of a computer in this investigation was certainly “a valuable aid to children’s learning” (McGregor, 1984, p.80) as the students learnt that they could employ a different method of story compilation and they all began to enjoy story writing using these word processors.

Often the students did not want to stop, even when it was time for their recess or lunch, due to expressed delight in using the word processor to assist them in their writing, saying that it was fun to use Story Book Weaver Deluxe (1994). This is echoed in a study conducted by Cochran-Smith, Kahn & Paris (1990), who found that a second grader involved in their study said that he “preferred writing with word processing because it was fun and because it was easier than writing with paper and pencil” (p.240). They also found that “the word processing negates the necessity for ‘hurting your hand’” (p.240), as was one of the discoveries in this investigation that the students

complained of getting a sore hand when they were required to write using paper and pencil.

All of the students were really keen to get to the computers every day and often, they couldn't wait to get stuck into their stories. Each of the seven students displayed little difficulty in constructing their stories using the word processors. They all possessed quite good fine motor skills, controlling the mouse very well and they all knew how to open files by double clicking the mouse. Each time the students sat in front of the computer, their hand automatically went onto the mouse.

The students' really enjoyed using the word processor to assist them with their story compilation. By using this application the students were able to see their work in a flexible way, as "fluid rather than static" (Balajthy, McKeveny & Lacitignola, 1986, p.28), thus "freeing the writer from mechanical concerns" (Bangert-Drowns, 1993, p.69). The students in this investigation were able to change their ideas and thoughts easily by re-arranging, combining, erasing and editing, thus enabling the students to "move backwards and forwards in the text" (Snyder, 1994, p.169). This "electronic text manipulation permitted new ideas to be viewed on screen in a temporary form, providing a realistic image of what is being written without the finality of ink or pencil on paper" (Boone, 1991, p.vii). This enabled the students to 'go with the flow' thus eliminating the lower order tasks of letter construction and freeing the user "to attend to 'higher order' strategic tasks" (Bangert-Drowns, 1993, p.70). That is, the writer has more time for thinking about the content of their writing (as highlighted also by Snyder, 1993 and Jones & Pellegrini, 1996).

The use of the word processor promoted students' motivation to write (with the students wanting the writing sessions to last for a longer period of time), engaged the students in editing, assisted proof-reading and the students produced longer texts. This is substantiated by the work that Nichols (1996) carried out, concluding that "students using computers wrote compositions with more words and sentences than students writing with pencil and paper" (p.159).

All of the students in this investigation proof read and edited their work, often using the arrow keys to change single letters or words in the middle of a sentence. The students moved between pages and changed any errors with ease and confidence. This was due to the fact that the students could make corrections very easily as stated by Nichols (1996), " revising and editing can be accomplished effortlessly with a few keystrokes" (p.159). The students in this investigation certainly were not afraid of changing and correcting their work as necessary.

The students were proud of their neatly printed, professional looking "crispness of the computer copy" (Green, 1984, p.22), thus boosting the "students' feelings of accomplishment" (Tompkins, 1994, p.364) as the students cared a "great deal about the appearance of their written work" (Kahn, 1987, p.12). The students that took part in this investigation certainly were very proud of their finished products as highlighted by Klenow (1992), who states that the professional quality of work that is produced by the computer "increases the ownership and pride students feel for their written work" (p.62). The students were keen to show their friends and parents the work that they had achieved using the word processor.

While the students had access to the word processors, they had increased motivation and an improved attitude towards writing. This could be due to what Bangert-Drowns (1993) suggests that the “excitement of using a high technology, would collectively contribute to the improvement of students’ attitudes toward writing” (p.72). This is also highlight by Bangert-Drowns (1993) who discovered that “as the attitude becomes more positive, the writing quality improves” (p.83). All of the students displayed a very positive attitude towards the word processors and, thus, produced an improved quality of writing while using this form of story compilation.

The tiresome task of recopying entire drafts was no longer necessary as the word processor provided “the tools to write without the manual labour that made writing distasteful” (Aumack, 1985, p.48) and the paper was not accompanied with smudge marks and little holes. The word processor took away the necessity to be neat and permitted the students to focus on what they wanted to write as highlighted by Klenow (1992), who states that the labour of handwriting is “a task that often limits the time students give to writing” (p.62). While using the pencil and paper method of story compilation, the students could not wait to complete their story, often producing texts that were very simplistic simply to get the task over and done with. However, once the students were exposed to the word processor to assist them in their story writing, they did not want to stop. They all expressed delight in wanting to undertake more stories using this method for their story writing.

The word processing package that was used during this investigation (Story Book Weaver Deluxe, 1994) was familiar to the students, as, according to them, they had used this package throughout Year Two and they had done some follow up work on

it this year. Therefore, the students were, as Bangert-Drowns (1993) suggests, able to focus on higher order thinking rather than be distracted by the first time learning of this software. It provided a source of creativity and motivation by providing the students with varying backgrounds that could be mixed and matched, a series of different font styles and numerous pictures that could be imported into the background to correspond to what was being written. The students certainly were not inhibited by the boundaries of the page and were not required to write “frequently onto blank pieces of paper” (Deadman, 1997, p.19). The word processor released the writer from restraints that inhibited the free flow of their words and ideas (Simic, 1994). While using a word processor, “students’ ideas tend to flow more easily then when using pencil and paper” (Nichols, 1996, p.164) as was the case with the students involved in this investigation.

When the students saw their finished product of their written pieces produced with the assistance of a word processor, they “experienced great satisfaction and enjoyment” (McGregor, 1984, p.84). The word processor changed the students’ perspective of writing stories as correctness and neatness didn’t seem to matter as the computer made their stories neat. The students’ certainly produced writing that was better using the word processor than that which was achieved using the traditional pen and paper method. Bangert-Drowns (1993), suggests that “learning to compose with word processors encourages longer documents” (p.83), as was the case with this investigation.

With the classroom teacher having such a high expectation of neatness, the students often expressed distaste in the writing process as they felt that their writing wasn’t neat enough. However, when they were able to use the word processor to write

their stories, they didn't "have to worry about their handwriting. Specifically, they do not have to think about spacing their letters, keeping them on the lines, or shaping them correctly" (Kahn, 1987, p.56). While using the word processors, the students involved in this investigation could concentrate on their story productions rather than on the drawing of the individual letters.

The students that participated in the study enhanced their editing skills, improved their creative ideas, enhanced their mechanics of their writing, expressed feelings of confidence, improved their concentration and they displayed risk taking while writing. The word processor certainly took away many of the unpleasant aspects of the writing process like corrections, neatness and re-copying.

Limitations

A limitation to this study was the availability of computers. Only five computers were initially available for the seven students to use so some of the students were required to share the computers. However, with negotiation with the classroom teacher, another computer was added. Therefore, by the second week of this study, only two students were required to share computers. This caused some problems in that the students did not want to take turns and the students that were using the computer would try to drag out their time by just finishing this and that off. Constant supervision of this sharing pair was required to ensure that they were taking turns and not taking over when it was not their turn to use the computers.

Two boys shared the computer initially and they handled the situation well even though they would have preferred a computer of their own. Once this initial piece was completed, then the boys were able to use their own computers and two girls were required to share. This situation did not work out terribly well at all. The girls did not have much of a concept of sharing. When one was using the computer, the other one was trying to take over and vice versa. To overcome this problem, constant attention was paid to ensure that both were getting equal and fair amounts of time to use the computer.

Further Research

The inclusion of a word processor in the writing program, as outlined in the individual case studies, produced a very positive effect. The students learnt that they could employ a different method of story compilation and they all began to enjoy story writing using these word processors. However, there are a few issues that arose from this investigation that could be further researched.

The word processing package (Story Book Weaver Deluxe, 1994) that was used, kept the students motivated by providing them with story images, pictures and backgrounds which enhanced their stories by making them look more professional. Story Book Weaver Deluxe (1994) is only one package that could be used in an investigation of this type. Further research into other computer programs and packages could produce additional outcomes to those seen in this investigation.

The students in this investigation thoroughly enjoyed compiling their stories using Story Book Weaver Deluxe (1994). However, compiling stories onto a standard word processing package, with only limited graphic images may produce a different outcome. Further research needs to be undertaken into this area to obtain the benefits of incorporating a word processor into a writing program.

The neatness aspect was a huge issue for all of the students' as the final appearance of their work mattered a great deal to them. Further research is necessary to determine, in greater detail, the importance of neatness in a writing program.

Concluding Remarks

Incorporating a word processor into a writing program, in this investigation, assisted the students by enhancing their creativity, keeping them motivated, improving their style and enabling them to produce a more comprehensive narrative. The students were proud of their professional looking work and they learnt that they could view their writing as flexible, allowing them to put their thoughts and ideas down without having to worry about getting it right the first time.

The use of the word processor promoted students' motivation to write, engaged the students in editing, assisted proof-reading and the students produced longer texts. The students' in this investigation, certainly produced writing that was better using the word processor than that which was achieved using the traditional paper and pencil method.

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APPENDIX

Conceptual Framework- Definition of Terms

Ideas, Organisation, Style & Mechanics: is directly related to the Standardised Marking Criteria as outlined by Tompkins (1994) and displayed in Figure 1.

Field: Refers to the “subject matter of the text” }
Mode: Refers to the “channel of communication used” } (Emmitt & Pollock,
1991, p.64)
Tenor: Refers to the “relationship between participants” }

Selecting, Combining, Arranging, Developing: Is related to the process approach to writing, where the students ideas are expressed in “effective sentences, paragraphs and often, longer units of discourse” (Writing K-7 Teachers Notes, 1992, p.3)

Genre: “A term used by linguists to refer to a particular form of language used for particular purposes and context” (Emmitt & Pollock, 1991, p.189)

Process Approach: The process approach to writing involves “pre-writing, composing a rough draft, revising, editing and publishing” (Seawel, Smaldino, Steele & Lewis, 1994, p.44)

Tutor: “The computer is used to present new material to the student” (Newhouse & Oliver, 1992, p.17)

Tool: “The computer is used to complete tasks related to the teaching/learning programme” (Newhouse & Oliver, 1992, p.17)

Tutee: “In this mode the students become the tutor teaching the computer” (Newhouse & Oliver, 1992, p.17)