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ABSTRACT

This study investigated the impact of word processing on middle school students. The study involved a high, middle, and low academic ability student, each spending an average of 114 minutes on the computer per week over four months. Data collection consisted of questionnaires, interviews, observations, and students' work. Each student answered questions on his/her attitudes toward writing. Interviews clarified responses to questionnaires. Students were then observed by the teacher as they worked at computers. Findings of the study contradict some current research in this field. Researchers have indicated that word processing eliminated most, if not all, the awkwardness in writing. However, this study found that students had difficulty with hand-thought coordination that was needed for typing their own writing. These findings support the need for phonetic and in-depth keyboarding skills to be in place before word processors are used for composition. Another finding was that computer composition time far exceeded that of traditional composition, suggesting that educators and researchers need to allow more time for computer composition. Implications of the study call for further study and analysis of skills students need in order to use the word processor in student composition. Focus must also be given to the differential of computer and traditional writing time. The writing survey and interview guide are appended. (Contains 21 references.) (Author/MES)

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The Impact of Word Processing On Middle School Students

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Master's Thesis

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Abstract

This study investigated the impact of word processing on middle school students. It occurred for four months, involving a high, middle and low academic ability student, each spending an average of one hundred fourteen minutes on the computer per week.

Data collection consisted of questionnaires, interviews, observations and students' work. Each student answered questions on their attitudes towards writing. Interviews clarified responses to questionnaires. Students were then observed by the teacher as they worked at computers. The teacher was also the observer/researcher in this study.

Findings of this study contradict some current research in this field. Researchers have indicated that word processing eliminated most, if not all, the awkwardness in writing. However, findings in this study indicated that students had difficulty with hand-thought coordination that was needed for typing their own writing. These findings support the need for phonetic and in-depth keyboarding skills to be in place before word processors are used for composition.

Another finding was that computer composition time far exceeded that of traditional composition. While many factors may explain this result, this suggests that educators and researchers now need to allow more time for computer composition.

Implications of this study call for further study and analysis of skills students need in order to use the word processor in student composition. Focus must also be given to the differential of computer and traditional writing time.

Computers have been used within the educational system since the invention of microcomputers for offices and personal homes. An issue that arose in using computers within the classroom was the lack of consistent research dedicated to the identification of the contribution of computers to the education of students (Mintz, 1997).

While research has been conducted on some concepts of the word processor and how it influences students' writing, studies lack consistent evidence that would sway educators and school districts to use word processing programs within their schools. Research conducted has identified few concrete results that illustrate to educators the need for the word processor. Results have focused on the effects on students with disabilities, not on students without. In addition, little attention has been paid to middle school students and the experiences they bring to writing and their attitudes on writing. The key factor of how a word processor can influence student writing has been researched little and with varied results (Mintz, 1997).

Two questions that needed attention concerned word processing and middle school students and how the word processor could help or hinder students' writing and if it influenced their self-conceptions as writers. In addition, studies needed to incorporate the attitudes middle school students have about their writing and whether using a word processor would alter these views in any way. Finally, studies needed to explore data concerning improved writing, the increase in writing length and the decrease of spelling

errors.

Various themes emerged in the area of word processing for middle school students. Themes of this search indicated a need for word processing programs in conjunction with a successful writing program, not as an add-on or a stand-alone enrichment activity incorporated into the writing program. The research showed that many students needed to see and use word processing as a real and integral part of their writing. Another theme that emerged from the search was a need for students to use the word processor in a social environment for real life purposes and in collaboration with the teacher and peers. Finally, research indicated that teachers needed to commit on how they wanted the word processor used in their classroom.

Students chosen for this study were asked to compose various writing pieces on the word processor. The writing topics and styles were student-driven and assistance was only provided as a result of a request. All students within the class were given opportunities during class and lunchtime to compose on the word processor in an attempt to camouflage those students in the study. In addition, all students were observed while using the word processor. The writing pieces were one source of data.

The study was conducted within a seventh grade classroom of approximately thirty-three students. Since it was an unreasonable expectation to study all thirty-three students, the sample was limited to a high level student, an average level student and a lower level ability student

within the same classroom. In order to determine which students were selected, every student in the class received a writing questionnaire and a writing prompt that they were asked to complete. In addition, a review of students' sixth grade Reading and English grades occurred.

The study was conducted in an urban public school. The school hosted approximately twelve hundred students and, as a result, the school was separated into Small Learning Communities. Each Small Learning Community (SLC) was based on a general theme that was then coordinated into the subject matter. SLC Coordinators headed every community; their role was to facilitate communication between the teachers and administration concerning information and ideas. This person also dealt with discipline issues that arose within the community. Teachers within each community were required to meet at least once a week to discuss students who were showing signs of academic, social and emotional frustration and to discuss any special events. The community in which the study took place was the Technology Community, which consisted of two sixth grade classes, two seventh grade classes and four eighth grade classes for the academic year of 2000-2001. The above-mentioned structure varies from year to year.

The school population was extremely diverse culturally, racially and economically. Half of the population consisted of adolescents from the immediate neighborhood and the other half was bused in from neighborhoods

across the city. Many students spent forty-five minutes traveling to and from school. Approximately one half of the school population received assistance with lunch and token fees. Parent involvement within the school was extremely limited due to their work schedules and the travel time necessary in reaching the school. Telephone contact was often the only means of communication available to both parents and teachers.

The research was conducted within a short time period, from September to approximately January, which loosely followed the first two semesters for the students. Due to this constraint, the study process began with the start of the school year.

Data was collected in various ways. The first means was through writing questionnaires (please see Appendix A for survey). The questionnaire was used in an attempt to discover pre-existing views students held about writing, and in particular, how they came to write. The questionnaire also was used as a basis for choosing the three students who participated in the study. The questions required the students to discover their own feelings regarding how they and others learned to write.

Another source of data was writing samples. Students were required to answer a writing prompt. This prompt was open-ended allowing student choice (please see Appendix B). The prompt was evaluated for the purpose of choosing the sample based on the number of spelling errors and words within the piece. Once students in a high, middle and low category were identified,

a review of sixth grade records occurred in the attempts to support the data gathered from the writing prompt response. Following the sixth grade records review, three students were then selected as participants of the study. All students were given a brief instructional lesson on the basic functions of the word processor.

A third source of data collection was students' accumulated writing. Students in the study were asked to complete all writing assignments within the classroom on the word processor. Each writing piece was printed and saved to a disk for evaluation. Each student had a binder in which all writing pieces were placed. Exploration of pieces consisted of spelling errors and the length of the writing piece. Each piece of writing for each student was photocopied and returned to the writer.

In addition, interviews began at the same time students began their writing. (Please see Appendix B for question guide.) The interviews, both verbal and written, focused on how the students viewed their writing and how they saw writing in their lives.

The data collected within the study were analyzed by consistently reviewing notes, observations and interviews, looking for emerging themes and constant issues. Once the material was read and digested, the researcher looked for recurring themes that were present. Data collection was ongoing and took place throughout the semester.

This study took place in a seventh grade, urban, public middle school that hosted fifth through eight grades. The study occurred from the third week in September until the second week in January, in an English classroom. The English class was chosen because that is where the majority of writing occurs within the curriculum. The English class lasted for forty-five minutes except for Mondays when the class lasted fifty-two minutes. The class consisted of thirty-two students with a mixture of social and racial diversity.

Each participant spent an average of one hundred and fourteen minutes on the computer per week. On some occasions, more time was spent on the computer if time allowed or if students came up from lunch, before or after school.

Within the classroom, students had access to three working computers. In the beginning of the study, a laser printer was present that the students could print from. However, mid-way through the study the printer stopped working and was sent out for repairs. When this happened the students could do one of two was things to print out their work. The first choice to wait until they had computer class (two days a week) and use the adaptor on the computer teacher's computer to print out; the entire school worked off a MAC platform. Their second choice was to save their work to a disk that I would take home and print out for them. Their work would be returned to them the next day. Most students chose the second option because they

would have their writing piece the next day. While this was not the initial plan for this study, it proved to be a valuable lesson for all involved, namely that technology is fallible.

Writing during this study occurred on an average of three days a week and at least two nights a week the homework assignment was to complete a rough draft or reread what was written that day.

Writing topics were presented by introducing one type of writing, for example, narrative. After the type of writing was presented, students participated in a brief "shout out" session where they expressed what they already knew about the writing. These answers were written down by a recorder and later made into a classroom poster. Students were then presented with at least one example of the writing, usually from the classroom literature book or an authentic source where appropriate. After examples were read and discussed, the students either added or deleted items for the classroom poster. Following this, the students brainstormed different topics that they could write about, while using the given writing type. It was stressed at this point that these were suggestions and that an individual could choose to write about something else entirely. It was also discussed that the teacher would be available for any questions throughout the process. At this point students usually discussed what they thought they might like to write about. Once this was completed students were allowed anywhere in the room to find a comfortable place in which to write. On a few

occasions, students were asked to separate because they were distracting to others.

The computers in the room were opened to anyone who wanted to use them. If they filled up an additional ten computers were available for use in the library. The three computers in the room were situated in a little alcove where the screens faced the rest of the class. Because of logistics and the size of seventh graders, this was the only feasible area in which the computers could be located.

When students completed a rough draft of their writing piece they were asked to walk away from it. This usually coincided with the end of the class period. They were then required as a homework assignment to review what they had written and jot down any comments or thoughts they had. The next day in class, they brought their notes and rough draft to a peer revision and editing conference. During these conferences students discussed a wide range of topics from content to structure. I wandered around the room helping where needed, observing and keeping pairs on task. As conferences ended, students went back to their papers to make changes or to begin their final drafts.

Upon completion, various methods were employed for publishing and yet sometimes there was no "formal" publishing. For example, students created short narratives that were published into a classroom book entitled,

"Who We Are", while another narrative concerning a special event was not published at all.

The three participants with in this study were regular users of the computer. Because of the study, it was arranged that the three stayed within the room and used the classroom computers so that they could be observed. The three participants of this study were chosen randomly, according to ability. One student was chosen from the high end, the middle and the lower end of the academic scale. Each student in the class was asked to fill out a questionnaire and get a permission slip signed by a parent/guardian. Anyone returning both was sorted according to their sixth grade records and names put into respective "hats". Their names were drawn and those three students became the focus of this study. The participants consisted of one girl and two boys.

CONSTRUCTIVISM APPLIED TO THE CLASSROOM

In conducting this study, many themes and categories emerged. Constructivist research has indicated that students incorporate prior knowledge as a basis for beliefs and values (Brooks & Brooks, 1993). During initial interviews Julie and Anthony expressed concern over their writing. They expressed concern over not being able to write well. Julie stated, "Writing is so hard, it's difficult to remember all the rules and spelling".

Two of the three participants, Julie and Anthony took negative comments that had been said about their writing in the past, internalized it

and made it a contributing factor in how they presently perceive themselves as writers. Every experience they have is examined through the eyes of their past experiences.

Another theme that emerged for each participant throughout the study was the difficulty in choosing a topic. The study took place in a constructivist word processing environment that allowed students to develop their own topics of concern. The participants were introduced to each kind of writing, given examples of each, participated in brainstorming possible topics and yet had extreme difficulty determining what to write about. According to Macarthur, Graham & Schwartz (1993) this type of structure should aid and inspire students to take charge of their writing and learning. My study did not show these results to be true. Many factors could have contributed to the finding in my study. However, from observations, students did reach frustration levels and despair when faced with a blank screen. The participants were accustomed to being given topics to write about. When they were given freedom to choose their own subjects, they struggled.

PROCESS APPROACH TO WRITING ON THE WORD PROCESSOR

Miller-Jacob (1987) discussed at great length the advantages of using the computer to teach a process approach to writing. The hindrance that I have discovered that has not been talked about is the assumptions students face when composing at the screen. From past experiences or maybe even

society at large computer generated writing assumed that computer-generated writing was correct and did not need revision. This researcher found that the process approach to writing was seen by the students as tedious and unnecessary when composing on the computer. As the example below indicated, Anthony felt that the revision and editing aspects of the process approach to writing were wasteful: "I really don't see why I have to double check my work, I'll run the spell checker!"

COMPUTER COMPOSTION COMPARED TO TRADTITIONAL METHODS

Another emergent theme for all three experiences was the distinction between pencil-and-paper writing verse keyboard writing. While all three participants had received classes in keyboarding and felt relatively competent typing, the time it took to compose on the computer far exceeded that of composition using pencil and paper. Many factors may have attributed to this aspect of the study. First, while instruction had been given in keyboarding, actual composition on the word processor had been limited to a few scattered experiences. Hence, typing what others had written was easier for the students than typing while going through the thought process needed for writing. To actually figure out what needed to be said, how it should be said and transforming those thoughts into individual small motor movements proved to be a frustrating aspect of the word processor for all three students.

PERCEPTIONS AS WRITERS

All three participants indicated, to varying degrees, the need for improvement in their writing pieces. Through interviews, each student discussed aspects that they would like to improve upon with the assistance of the word processor. Steve, the higher ended ability learner, thought that the processor's thesaurus and the grammar check would help him to correct errors in sentence structure and wording. He also felt that the thesaurus would help him to develop more mature wording in his sentences. Anthony, the average learner indicated the awesome task he had of making his writing make sense. He felt that the word processor, with its cut and paste editing features, would allow him to write all at once, then go back, and carefully correct it. Julie, the lowest leveled learner felt that her lack of spelling ability hindered her from expressing all of her ideas. She felt that the word processing program would automatically fix her spelling errors and produce wonderfully correct pieces of writing. Steve, Anthony and Julie all thought that the word processor could be the solution they needed to help improve their writing. As Steve stated:

"Maybe the computer can help me write all that I want to!"

THOUGHTS ON WORD PROCESSING

An overriding theme of all three participants was their beliefs that the word processing program would and did help each student to write. At the beginning of the study, I surveyed the students to identify their expectations about word processing. (Appendix A)

Preliminary interviews indicated a resounding positive attitude toward the aid of a word processing program in relation to the improvement of their writing. Students felt that the word processing program would help them to write clearer, better pieces. Steve felt that the word processor could aid in his growth as a writer while both Anthony and Julie felt it would fix anything wrong with their writing. All three participants held great expectations of the word processor. As Meyer and Rose (1987) stated word processing had an empowering effect, at least initially. All three students felt that the word processor would help to solve problems or address areas of weakness.

BACKGROUND KNOWLEDGE TO THE FOREGROUND

While conducting the three initial interviews, a key factor emerged from all three participants. As Meyer and Rose (1987) stated students bring prior negative experiences as writers with them into their next writing piece. All three participants indicated a failure or not being good at writing. A poignant example of this came from Julie, the lowest ability participant when she said:

> "I really used to like to write, I wrote to my Grandmom in Georgia all the time. I thought I was a good writer until the fourth grade when all my papers came back with red marks and "you cam do better" stamped at the top. Since then I haven't liked to write much and I get nervous when I know someone is going to read what I wrote."

Julie expressed great concern about being a poor writer and how hesitant she becomes now when she had to write. She obviously carries with her the red marks and stamped expression she was once exposed to. Anthony also expressed his need to make his writing clearer. When further probed he discussed the fact that when people are done reading his writing he is usually posed with "I don't get it". He mentioned several experiences when teachers had asked him to explain what he wrote and he stated when this happened he felt "dumb". Anthony also stated that because he feels his writing is confusing to his readers he tries to write simply and does not take the risks he would like.

All three participants have had negative experiences in writing and brought those experiences to the study. These experiences affected everything they did and clouded their self-perceptions as writers.

SPELLING ON THE WORD PROCESSOR

One purpose of this study was to determine if spelling improves with the use of the word processing feature of a spell checker. According to Jinkerson & Baggett (1993), while spelling ability does not have any link to intelligence, people still perceive poor spelling to be an indicator of a poor

learner. Through classroom observation and interviews, I can state that most of the seventh grade students in the classroom see spelling as a hindrance to their writing. Steve, the top-level learner, stated the he does not always use the words in his mind because he is not sure of the spelling. Julie, the lower-ability learner stated quite clearly that she only uses words that she knows she can spell correctly.

The data and observations in this study contradict the findings of Outhred (1989) and Jinkerson and Baggett (1993). They stated that the word processor would aid the lower level students the most, while my study demonstrates just the opposite. Research indicated that the word processor allowed the pinpointing of incorrect words and aided the writer in choosing an appropriate substitute. While this did occur, through watching Julie it was discovered that phonics skills must already be part of the user's ability in order for the spell checker to be of any help. In other words, the spell checker can only suggest words based on the phonemic structure of what was typed and can not help the user choose the correct word. As the example below, taken from observation notes, clearly indicates, that without phonemic awareness, a student may find the spell checker not only useless but also frustrating:

> "Julie completed typing and activated the spell checker. The spell checker came upon the word "prodec" (produce) was highlighted and four choices given, process, profane, produce and procedure. Julie sat and stared at the screen. She attempted to sound out the words and succeed with process and realized that she did not want that one. Julie could not sound

out the other three words. She then asked me to tell her the words..."

As the above example indicates, Julie would not have been able to identify the correct word without assistance. While the spell checker was indeed a powerful tool for Steve, it proved ineffective and even frustrating to Julie, who could not distinguish the different words among the suggestions offered by the spell checker. Anthony experienced something similar to Julie but when faced with a word that he did not know he walked away and retrieved a dictionary. He then sat down, looked up each word, and read the definition until he found the one he wanted. While the end product was successful, the tool activated was not used as intended.

The spell checker in this study was a double-edged sword. If the participant had the skills necessary to determine beginning, middle and ending sound then that participant succeeded in highlighting the intended word. But if the participant lacked the skills needed in identifying sounds then that participant was confronted with a confusing selection of unknown words. The spell checker did not aid Julie or Anthony, to find the correctly spelled word. Hence spelling for these two improved little throughout the study.

CONTENT VERSUS MECHANICS

MacArthur et al. (1993), Simic (1994) and Ross, Smith and Woodson (1991) suggested that students would be able to concentrate more on content rather then mechanics because the word processor provided an easy, hassle-free means by which to compose. None of the three participants found the word processor to be easier to compose on. Throughout the interviews I consistently heard students that said, "I thought it would be so easy". Each student struggled with keyboarding issues and structural issues of a writing piece. Indentation is one example. This researcher expected that these issues would decrease as students spent more time at the computer but I did not see that happen by the end of this study. In fact, Anthony and Julie became discouraged halfway through the study. As Anthony stated, "I don't feel like I'm catching on, it's still hard."

REVISION, ALWAYS PROBLEMATIC

The same researchers as mentioned above also stated that revision would become more manageable for students because the word processor offered so many tools to help them. While there are tools aplenty, I ran into a perspective problem during my study. Students did not believe they needed to revise their papers because they werewritten on the word processor. Steve, Anthony and Julie all felt more than confident that there were no

mistakes because the computer printed it out very neatly and because it, the computer, did not tell them there was a problem.

Once the misconception was handled the students attempted to revise their work with varying degrees of success. Steve was able to successfully use the cut-and-paste feature to manipulate his sentences. Steve felt this let him move things around and change confusing thoughts easily, something he could not do with pencil and paper. Anthony attempted revision with cut-and-paste and was mildly successful but eventually discarded the use of it by the end of the study. When Anthony was initially introduced to a feature he was very excited and said that he thought this feature would help him make his writing clearer, less confusing. Beginning attempts proved frustrating. He could not understand why a section appeared twice when he copied and pasted it instead of cutting and pasting it. Once I introduced him to the cut-and-paste feature, he fared a little better but became discouraged on longer writing pieces because he could only view a small portion of his writing at a time. He eventually found success using the cut-and-paste option but never really felt comfortable with it. Toward the end of the study he decided to give up this feature with this statement, "right now it is just too confusing maybe I'll try it again later."

FITTING IN, PEER ACCEPTANCE

As the study continued a need for each paper to look the same as their peers became evident. As Atwell (1998) stated, adolescence is a time where social acceptance is craved and desired and all three participants reacted, in one way or another to this concept. Steve, the highest of the three participants did not especially enjoy when he had to share his writing, neither the handwritten paper nor the computer-generated paper. After observing Steve on several occasions shy away from sharing his work, I questioned him on this during one of our interviews and he informed me that;

> "My papers never seem to be the same as anyone else. They are different. I always get good grade, so I guess their different in a good way but my friends always make fun of me when I use adult words or when I get a good grade on a writing paper, so I'd rather not share with them..."

In relation to Steve, Julie despised sharing any of her writing but her reasons were different. When pushed by a peer to share her paper, Julie would stand by the reader swaying foot to foot and biting her thumbnail. She approached me many times (seven in total) during the study to hand me a finished piece and quietly plead, "please don't show this to anyone". When Julie and I sat down to talk, her shyness or embarrassment concerning her writing became quite clear. When I gave her back her first computer written piece and said, "let's talk about this", her first response was "I know it's really bad, I did try but I guess not hard enough". Once Julie calmed down, we

were able to discuss her dislike for sharing her work. The following excerpt taken from an interview with Julie indicated her awareness of not only her ability but also how it compares to that of her peers:

> "I don't like it when people look at my work. I know I can't spell and I look stupid when someone tells me a word is wrong...uh, I don't like looking stupid, so I don't show people my writing..."

Julie obviously is attuned to the fact that her writing skills have not developed in alignment with her peers and her need to be accepted as a seventh grader by classmates requires her to hide her writing.

Anthony also expressed concern around people, especially, classmates looking at his writing. He stated that when people read his work he gets nervous and begins to worry. He explained to me during one interview later in the study a coping strategy he developed:

> "I try to read my partners paper first and if mine looks like his I'll let him read it but if it doesn't I'll tell him that I am not done or that I need to fix something on it. This way I can go back and make my paper look likes his."

All three participants exhibited a great need to be like everyone else in the classroom and the computer did help each participant to feel that their papers "looked" like everyone else's. As Cochran-Smith (1991) and Meyer & Rose (1987) pointed out, word processing helps students produce the same, neat error-free paper as their peers. My study results support this contention, to a degree. While it was true that word-processed papers appeared to be of similar quality at first glance (black, typed lettering with no

erasures or whited-out spots), the word-processed pieces did not all contain the same writing style, word choice or structural set up. In other words, the word processor took care of appearance, but not content. Once students began reading the look-alike papers, they were able to distinguish that every paper was not the same as or equal to the others. There were qualitative differences between papers. Cochran-Smith (1991) and Meyer & Rose (1987) portrayed the word processor as being an equalizer for writers and that was true on a surface level in this study but once students read the papers, differences were apparent.

ATTITUDES OF MIDDLE SCHOOL STUDENTS

Throughout the study, students showed a disinterest in the wonders of the computer. Contrary to Meyer and Rose (1987) who insisted that the keyboard is a new medium which is often free of negative associations, these students had experiences with the computer that have not always been positive. Today's students as compared to those in 1987, when Meyer and Rose published their paper, have been raised with computers, sometimes using them on a daily basis. The computers are no longer new nor do they hold the allure of a stigma-free medium. Through observations and interviews, students discussed with me their experiences in using computers in computer classes and or the frustration of using a computer at home. As Steve stated:

"I like using my computer at home to create graphics but I'm not particularly liking it to write with. I feel clumsy and it would be easier to just use a pen."

IMPLICATIONS

Having concluded my study, reviewed the data and thinking about how this affects further study many aspects came to mind.

Throughout this study, I wondered many things. To what extent did the structure of my writing class add to the difficulties students had in choosing topics? The students in the study came from a more traditional writing program when compared to the constructivist approach I was asking them to take part in. Before this year, they were told what each type of writing was and then given a specific topic to write about with specific requirements. For example, they were asked in the sixth grade to complete a writing piece that was five paragraphs long on their views on a school uniform policy. When they came to me they were introduced to a writing style and then asked to write about something important to them that would fit into the category of the writing. As seen through the study most students had extreme difficulty discovering what they wanted to write about. I question the approach I used, wondering if the students were "led to water" without proper guidance. The relationship of the writing program to computer use needs to be considered in this and any study of students' writing.

On a more practical level, I felt this study should have taken place within a computer lab. It was difficult as the participant and researcher to juggle not only the computer writing but also the traditional writing and management issues that arose. I think if this study had taken place in a lab environment management issues would have been less time- consuming and teaching and observations would have been less demanding and easier to handle. I also feel that if this study had developed within a lab setting students at the computer would not have had to wait as long for help or mini-lessons on functions as they did within the regular classroom. Situations that would arise within a lab could have been presented as mini-lessons for the entire classroom rather than for three children.

With even the best intentions events occur that are out of the researcher's control, for example, when technology fails. It seems that whenever one is dependent upon technology it is reasoned that it will fail. When the printer broke half way through the year, I was faced with a large dilemma. While it was dealt with, it caused a major disruption within the study for at least a weeks' worth of time. While certainly, one can never guess exactly what will happen, one needs to have a back up plan in mind.

In relation to technology, I thought that the computers were in an awkward place within the classroom. Ideally, I think computers should be in a place within the room where students can feel that they are alone or at least a place where they have some privacy. In this study, the computers

were limited to an alcove where the screens faced the entire classroom. Some students while working on the computers felt uncomfortable that the rest of the class could view their work, easily. For future endeavors of this nature, I would strongly suggest that the computers be situated in an almost isolated spot within the room.

I would also suggest that any researcher who attempts to study students' writing practices should first interview the students to document their expectations and opinions. I did this before the students composed on the word processor and found it to be extremely insightful and helpful when looking through field notes and data. Students have an opinion or belief about all things, even if they know very little regarding the subject. These beliefs carry with them into all experiences and shape future use. The participants within the study had beliefs about the beneficial possibilities of word processing. This helped to provide all three participants with at least motivation to use the word processor. I feel that it is of the utmost importance for researchers to delve into the preexisting beliefs/opinions of their participants to identify what their perceptions of the activity.

While conducting this study, an issue surfaced that I as the researcher and the classroom teacher was unprepared for. Students composing on the word processor took longer than the students who used traditional methods. While this phenomenon could be attributed to many different things, from needing more time to settle at a new medium to taking longer to identify

appropriate keys, the point is that it was not something I had foreseen as an issue. In the beginning of the study, when I first suspected that this might be an interesting yet problematic development, I had to do something. I wound up extending deadlines and allowing students to use the computer before, after school, and at lunchtime as extra composing times. This at least helped to address this issue but it would be interesting to discover what factors led to this issue.

An area in this study that needs further investigation is spelling. My original intent was to determine if a spell checker improved spelling. While an obvious response would be, "of course it does." I began to wonder if my experience is more common to a classroom than research has indicated? I have a feeling it may be. While spell checkers may be helpful for good spellers, they may not help students who do not have the requisite phonic skills.

In addition to the above mentioned I would suggest that researchers who are interested in this topic might be well served to study students writing with word processing for extended periods of time. They would then see students become accustomed to word processing usage and perhaps accustomed to the spell checker. Perhaps I only began to see the beginning of a learning curve and further research should be done with similar groups over longer periods so that more of the learning curve can be observed.

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APPENDICES

Appendix A

Writing Survey

Name_____ Date _____

1.Are you a writer? _____

(If your answer is YES, answer question 2a. If your answer is NO, answer 2b.)

2a. How did you learn to write?

2b. How do people learn to write?

3.Why do people write? List as many reasons as you can.

4.) What does someone have to do or know in order to write well?

5.) What kinds of writing do you like to write?

6.) How do you decide on what you will write about?

7.) What kinds of response helps you most as a writer?

8.) How often do you write at home?

9.) In general, how do you feel about what you write?

10.) Have you ever used a computer while writing? _____

(If you answered YES, describe your experience. If you answered NO, do you think a computer would help you write?)

Appendix B

INTERVIEWING GUIDE (after using the word processor)

What did you write about?

Describe your experience using the word processor while writing.

How was writing on the word processor different than using a pen and paper for you?

Did using the word processor help or hinder you? Describe.

WRITING PROMPTS

-If you were asked to describe yourself, how would you do it?

-Describe your favorite thing, explaining the value it holds for you.

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