The Teacher Educators' Journal

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Contents

Exploring Pre-service Elementary Teachers' Confidence in Teaching Financial Education: The Effects of Discovery-Based Student-Centered Activities

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Abstract: This study interprets pre-service teachers' confidence teaching personal finance tenets for grades K-8. Enrollees in a social studies methods course researched standards and developed lessons concerning personal finance. Confidence in teaching financial education increased, as did specific awareness. The author qualifies findings due to the low response rate and encourages additional research.

Pre-service and in-service elementary teachers' knowledge and confidence teaching personal finance represents an important research area. Studies (McKenzie, 1971; McKinney, McKinney, Larkins, Gilmore, & Ford, 1990) show that teachers generally possess low knowledge of economic education tenets; yet elementary educators agree with generally accepted financial education tenets for Grade 4 (Lucey, 2004). Research indicates that short-term efforts may somewhat increase pre-service teachers' confidence in teaching K-4 tenets; however, when instructed about the complexities of math associated with personal finance, confidence in the associated math underpinnings wanes (Maxwell & Lucey, 2006). This paper interprets the effects of constructivist-learning processes on pre-service elementary teachers' confidence in teaching of personal finance. Specifically, the author considers whether pre-service teachers' development and demonstration of student-centered cooperative activities increase their confidence in teaching K-8 tenets of personal finance.

Literature

The financial illiteracy of youth represents a research topic of emerging interest. While surveys, such as the Jump$tart Coalition's (e.g., Jump$tart Coalition, 2006; Mandell, 2002, 2004) examine the financial understandings of teens, less research toward understandings of elementary school children occurs. This situation, in part, results from the belief that young children are unable to recognize patterns of economic relationships (Schug & Birkey, 1985). Nevertheless, children have basic wants and possess vulnerability to the influences of those who shape perceptions of their material needs. As Holst (1999) notes that corporations target young children with their advertising, it stands to reason that parents and educators have the abilities to influence children's financial behaviors as well. Financial literary represents an important elementary education curriculum area for all education stakeholders to consider.

Literature provides limited research into financial patterns of elementary aged youth. McKenzie (1970) documents low economic understandings of fourth graders, yet observes higher scores for students of parents in professional occupations. Moschis and Moore (1978) find significant differences in understandings of brand knowledge, pricing ability, consumer rights, and consumer roles among students of different economic classes; however, their study employs an obsolete measure of economic status. Hansen (1980) reports that although economic influences affect 3rd grade boys' financial understandings they do not affect girls'. Gatherum (1993) discovers that parents tend to perceive girls as spending more effectively than they perceive boys' spending effectiveness. Lucey (2002) finds that low levels of financial literacy occur among urban fourth graders. Thus, the research indicates that children possess low financial understandings and that social patterns may exist among these illiteracies.

It appears that public education needs to address these challenges; however, research (e.g., McKenzie, 1971) indicates that teachers possess low understandings of economic/financial tenets. This situation

fosters their dependency on financial professionals for educational materials, which may not always contain sound advice (Stanger, 1997).

To engender sound financial teaching by licensed teachers, teacher educators must ensure that their students possess both knowledge of the content and understanding of instruction. Institutions of higher learning must develop pre-service and in-service teachers' knowledge of personal finance content and instruction.

Preparing the teachers
The solution to this situation may lie in providing educators with the information to convey financial tenets to students and the tools for fostering dialogues about related curricular topics. Literature provides evidence of success associated with workshops that train teachers in economic and financial knowledge. Schug, Wynn, & Posnanski (2002) report attainment of significant financial literacy gains among urban students and teachers by providing teachers with investment tenets and encouraging their development of related lessons. Schug and Butt (2006) disclose significant increases in economic and financial knowledge of urban middle-school students and teachers when training teachers using the National Council of Economic Education's *Financial Fitness for Life* curriculum. Schug and Niederjohn (2006) describe the improvement in student achievement from using the National Council of Economic Education's *Learning, Earning, and Investing* curriculum to train teachers to introduce their high school students to investing principles. Providing teachers with the content knowledge and instructional resources positively affects students' financial understandings.

It appears that active involvement relates to such understandings. Although not interpreting significant differences, findings from the 2004 and 2006 Jump$tart surveys (Jump$tart Coalition, 2006; Mandell, 2004) indicate that high school seniors who participate in a stock market game average higher Jump$tart survey scores than those who do not. By engaging students in experiences that they remember, it may be possible to benefit both their financial knowledge and their financial practice.

If teachers are to facilitate students' understanding and practice of personal finance, they need both sound understandings of the material and the confidence to develop ideas for conveying this information to their students. While research documents the success of "train the teacher" financial education workshops, such endeavors assess understandings of program content, not necessarily enrollees' financial literacy. Indeed, Varcoe, Martin, Devitto, and Go (2005) report successful outcomes from the development of financial education curricula based on students' needs. It would seem that a standardized financial education curriculum risks alienating students who do not occupy the financial conditions presented in related materials.

This paper interprets whether a learning experience that enable pre-service teachers to develop lessons plans that provide their own interpretation of personal finance standards increases their confidence in teaching tenets of personal finance. In doing so, it invites a discussion in the teacher education community about methodologies for preparing candidates to teach this important area.

Methodology
Sample
The convenience sample consisted of one section of an undergraduate social studies methods course at a Midwestern institution of higher learning. The course had an enrollment of 28, comprised of one male and 27 females. Of these students, 14 completed the pre-treatment survey and seven completed the survey after the treatment.

Instrument
The Teacher Candidates' Financial Education Efficacy Measure (TCFEEM) represents a modification of the Pre-service K-4 Teachers' Financial Education Confidence Inventory (PFECI) (Maxwell & Lucey, 2006). Inter-

correlation reliabilities for their instrument are provided in Table 1.

Table 1
Pre-service K-4 Teachers' Financial Education Confidence Inventory (PFECI) Reliability Coefficients (α)

	(N = 14)
Income	.88
Money Management	.96
Spending and Credit	.95
Savings and Investments	.88

The revised instrument contained 76 Likert-styled response items, of which 49 items interpreted respondents' confidence of teaching financial education standards. The scale ranged from 1 (Very Unknowledgeable) to 5 (Very Knowledgeable). Rather than providing financial education items only for students through fourth grade, the revised instrument includes items for students through eighth grade. The author made this revision to be consistent with the teaching aspirations of course enrollees and with the nature of the course.

In addition to the financial literacy tenets, the instrument included 21 items concerning attitudes towards financially related social justice issues, and six items concerned the respondents' background, knowledge and efficacy. The instrument also contained six open-ended response items concerning student understandings and perceptions of financial learning. Table 2 provides the reliability statistics for the revised instrument with regard to items in the four generally accepted financial education areas.

Table 2
Teacher Candidates' Financial Education Efficacy Measure (TCFEEM) Reliability Coefficients (α)

	(N = 48)
Income	.51
Money Management	.60
Spending and Credit	.64
Savings and Investments	.65

Procedure
The author assigned students into eight academically heterogeneous groups, each of which was responsible for one of the four generally accepted areas of personal finance: income, money management, spending and credit, and savings and investment. He directed students to the Jumpstart Coalition's website to research the National Standards in Personal Finance (http://www.jumpstart.org/Standards&Benchmarks.pdf) for their particular area and selected grade level. Based on its interpretation of the standards, each group developed student-centered cooperative activities, and facilitated them for the class to demonstrate their application of the standards. For two consecutive sessions, the students demonstrated these lessons, one lesson for each area at each meeting. Students completed the survey two weeks before and two weeks after the experience.

Results

Because of the small convenience sample and high study attrition, the author limits analysis to an interpretation of descriptive analysis and respondent comments. The presentation of findings begins with an interpretation of all respondents' confidence two weeks prior to the assignment. A presentation of changes in respondents' confidence ensues.

Table 3
*Teacher Candidates' Pre-Experience
Confidence Teaching Financial Education
(n = 14)*

	μ	Maximum	Minimum
Income	3.17	4.27	1.55
Money Management	3.31	5.00	1.10
Savings and Investments	3.05	3.92	1.42
Spending and Credit	3.31	4.63	1.25

The neutral means may result from respondents' range of confidence concerning the related topics. All 14 students responded to an open response item that asked about their confidence in managing their own funds. Only three (21.43%) respondents indicated that they were very sure, with nine (64.29%) responding that they were somewhat sure. When asked where they learned about managing their money, ten (71.43%) responded that they learned at home with their family and four (28.57%) learned from the management of their own funds. Although most respondents learn about personal finance at home, data indicate that the contexts for learning generally do not foster confidence of understandings.

Table 4
*Teacher Candidates' Pre and Post Experience
Confidence Teaching Financial Education
(n = 7)*

	μPre	μPost	Change
Income	3.18	4.30	1.12
Money Management	3.41	4.30	.89
Savings and Investment	3.08	3.90	.82
Spending and Credit	3.51	4.46	.95

The pre-experience means in Table 4 are different from those presented in Table 3 because of participant attrition. Gains are evident in all four areas.

To interpret reasons for these gains, I consider the comments of those students who responded to open response items. Four students responded during both survey administrations to an item requesting them to "describe the areas of financial education that (they) have comfort and discomfort teaching." One initially wrote, "I don't have much comfort in any of it. I understand basics about personal money management, cost, basic credit, but not enough to teach others." Afterward, this student remarked that she had confidence in teaching "savings, opportunity cost, (and) budgets." Another student initially commented that she "was not sure" about the topics, while disclosing afterward that she "can teach any of it comfortably with the proper resources." Finally, a respondent indicated before that the experience that she was comfortable with "maintaining a checking account" and uncomfortable with "tax issues, loans and mutual funds." Afterward, she "would feel more comfortable with more knowledge on the different disciplines." The comments indicate that where initial comfort existed, it resulted from experience with the topics, such as everyday record keeping; discomfort was associated with unencumbered financial issues, or those unrealized. The process familiarized respondents with financial topics by providing respondents with additional exposure to them.

When asked what financial education topics they would include in their repertoire, the four students who commented both before and after the experience disclosed ideas that were more specific and fewer generalities concerning their curricula. One student initially listed "keeping an account" as a topic and mentioned afterward "savings, supply and demand, credit" as possible content. Another student reported prior to the experience that she would include "savings" in her repertoire, while disclosing "budgeting, savings, opportunity cost, and price comparison" as topics for her future practice. These responses indicate that students developed knowledge of additional financial education areas, mostly spending and credit,

through their discovering of the content and creation of learning experiences to enhance their understandings.

Discussion

Although this study produced a low response rate, findings provide patterns for examination in future studies with larger samples. Exposure to financial education through discovery processes provides favorable student outcomes. Responding students expressed more confidence teaching all areas of financial education mentioning specific areas of comfort in their comments.

The results indicate that pre-service elementary teachers may not need prefabricated or commercialized curricula to increase their confidence in teaching personal finance. Given the time and resources, students have the ability to develop meaningful lessons and learn about the content through the process. The reader is cautioned that the increased confidence represents a valid interpretation for only those students completing surveys both before and after the learning, or one-fourth of the students enrolled in the class. Information concerning the confidence of all students could significantly alter presented results. Nevertheless, future research is encouraged to examine whether these outcomes extend to in-service teachers and how such processes affect student achievement, when compared to commercialized curricula.

Students who commented about specific areas of confidence provided limited numbers of topics. As noted above, these topics are largely within the spending and credit area. It is possible that the processes largely enhanced students' confidence teaching spending and credit tenets; it is also possible that responding students were responsible for researching standards and planning lessons concerning spending and credit. While additional studies need to interpret which reasons best explain these circumstances, the findings suggest a need for semester long courses on methods of financial education that allows enrollees'

research and development of lessons in all four areas.

Conclusion

The findings indicate that two, two-hour experiences resulting from pre-service teachers' discovering of financial education tenets increases confidence teaching of this important area. Despite the study's low statistical power, it documents the need for additional teacher educator efforts to develop their candidates' knowledge and facilitation of financial learning in their classrooms. It calls attention to a neglected content area requiring teacher education focus.

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Categorizing Problems of Novice Secondary Teachers

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Abstract: This study used survey methodology to answer the question: What are the types of problems experienced by contemporary novice secondary teachers? A typology of teacher problems was developed. Results indicate that problems can be grouped into six categories: Teaching, Personal Matters, Outside Testing, Bureaucracy, Colleagues, and Resources.

Introduction

Teaching is a profession where 30% to 50% of those who start leave teaching during the first five years (Moir & Gless, 2001) so, the early years of a teacher's experience can affect directly whether the teacher continues in teaching or seeks another career. These early years' experiences have immense impact on whether the person has an opportunity for and a desire for a longer career in that a teacher who has had a difficult first few years may well choose to leave teaching for another profession. This is troublesome when the national statistics are examined on how many teachers are needed to provide a quality education to children.

By 2008, the U.S. Department of Education estimates enrollment in American public schools will rise to 48 million and in that same year, the Department expects American school districts will need to hire 2.2 million new teachers. Some school districts may fill their positions by hiring experienced teachers away from other districts, but many districts will find that they need to hire those fresh from their teacher preparation programs. It is these new teachers who are most vulnerable to attrition within the first five years. With a need for teachers to educate a growing population of children, it is important to find out more about the difficulties that novice teachers have. By finding out what teachers view as problems, teacher educators and teacher leaders can move toward effective ways of increasing teacher retention.

Literature

Novice teachers face many challenges and often have many problems and areas of concern. For example, each lesson taught by a first year teacher is taught for the first time as there is no previous planning or similar lessons to fall back on for a new teacher (Rust, 1994). Adding to the difficulty, the novice teacher has no master teacher as s/he had in the student teaching experience, so the first year of a teacher's career is the first time that s/he is held entirely accountable for all teaching and learning that takes place within the classroom (Featherstone, 1993).

The study of teacher problems has a long history in that numerous studies have examined the concerns and problems that novice teachers experience and many researchers have sought to identify commonalities in the problems described by beginning teachers (e.g.: Brock and Grady, 1996; Broadbent & Cruickshank, 1965; Cruickshank & Myers, 1975; Intrator, 2006; Ganser, 1999; Gratch, 1998; Hertzog, 2002; Veenman, 1984).

Veenman's (1984) landmark meta-analysis of 83 studies detailed a list of more than 20 problems that were cited frequently in studies involving new teachers such issues as classroom management, dealing with disruptive students, and time management concerns. In the 20 years since Veenman's research, other studies have sought to examine novice teacher problems using a variety of methodologies to find out which problems were most troublesome for new teachers such as interviews, surveys, and participant observation in novice's classrooms.

In the last 10 years, contemporary researchers have sought to identify problems expressed by current novice teachers and those in student teaching resulting in the identification of a wide variety of problems including: (a) personal factors such as dealing with tensions with colleagues (Beach & Pearson, 1998; Hertzog, 2002) and an unmet need for

emotional support or lack of feedback (Chubbuck, Clift, Allard & Quinlan, 2001; Hebert & Worthy, 2001), and (b) classroom factors such as a lack of spare time, dealing with clerical work, classroom discipline, and managing teaching issues (Ganser, 1999; Hertzog 2002; Intrator, 2006; Nicholson & Heidenreich, 2007).

Purpose Statement

This study was designed to gather information about the types of problems experienced by novice teachers and, based on this data, to create a contemporary typology of problems reported by novice teachers. The major research question for this study is: What are the types of problems experienced by novice teachers? Survey methodology was used to gather data and the purpose of this paper is to report the category system. Developing a category system of teacher problems is important because it allows for discussion of the problems by category rather than by specific problems.

Participants and Data Collection Procedures

Data were collected using survey methods that allowed for data collection from a large number of participants teaching in various schools over the course of 10 weeks. The survey instrument modeled after one developed by Cruickshank and Myers (1975) asked participants to describe their biggest problem of the past week. The intent behind this instrument was to gather information from participants that would allow development of a bank of problem descriptions from which a category system of teacher problems could be developed.

Fifty-two novice teachers (those in their first through third years) who taught in secondary schools across the country (although the majority was located in the Northeast) participated in this study. These participants were graduates of a large private university in the East with an NCATE-accredited program of teacher education. Approximately 60 percent were female and each participant taught one of the following subjects: mathematics, science, English, social studies, physical education, art, or music.

Participants were sent a copy of the survey approximately every two weeks for a duration of 10 weeks in late fall to early winter. Data were collected over a period of about three months because this allowed for changes in participants' experiences and their views of their experiences. (Note that the intention of this study was to collect a large number of teacher problems for analysis and not to conduct an analysis of an individual participant's problems over time.)

The complete data set consisted of 168 survey responses reported by 52 participants indicating that each participant responded approximately three times.

Analysis

Response instruments were analyzed to develop a typology of problems described by teachers. The analysis was broken into four phases. In Phase One a random sample consisting of 56 surveys (approximately one third of the total number) was chosen. Each of these problem descriptions was read and the problem was placed with others that seemed to deal with similar issues. At the same time notes were made as to what constituted each type of problem. These notes were formalized into a written description of problem categories.

Phase Two began by selecting two colleagues to use the written descriptions to categorize these same teacher problems. Both were experienced educators with professional experience as school teachers. These individuals used the tentative category system developed in Phase One to categorize the sample of 56 problems and their ratings were compared so an "inter-rater agreement" score could be calculated. For this research, the percent of agreement (inter-rater agreement) between categorizers was calculated by dividing the number of agreements by the total number of comparisons. The inter-rater

agreement scores were below 80 percent in nearly all categories, so the category descriptions were revised to address questions or difficulties that the categorizers had in using the categorization system. This was done by adding some examples from the data to illustrate each category and by revising the category descriptions to be clearer.

Phase Three began by recruiting two new individuals to use the revised category descriptions to categorize the sample of 56 teacher problems and as before, these individuals were experienced teachers. Each person was asked to categorize the teacher problems and the inter-rater agreement this time was higher, but not yet at 80% for all categories. This was addressed by combining several categories. With the combined categories, it was possible to generate final category names and descriptions with inter-rater agreement of at least 80 percent and the final category system is shown in the results section.

In the fourth, and final, phase of this analysis the finished category system was tested to see if it could be used accurately by people unfamiliar with its development. A full set of data and the category system was provided to four individuals who had not participated in the development stages and these experienced educators rated the problems and reported this information. Using the final category system, the raters agreed on which problem statements went into which category at least 80% of the time and, in several categories, the agreement was closer to 95%.

Results

The final category system with at least 80% agreement between all raters is shown in Table 1.

Table 1
Novice Teacher Problems

Category Name	Description – Problems fall into this category when …	Example Phrase(s)
Outside Testing	the teacher reports an issue to do with understanding, dealing with appropriately, and having students prepared for outside testing from state and local authorities	"…due to the ELA testing…"
Resources	when the teacher reports an issue with having appropriate classroom resources including: curriculum materials, resources, equipment, and other supplies	"…having enough money to run my program…"
Bureaucracy	the teacher reports an issue with his or her understanding of and control over factors in the bureaucracy and "system" of schooling	"…the letter was sent out [by the school district] in error."
Colleagues	the teacher reports an issue with relationships with colleagues; issues may include problems communicating, working together, and other things that add to an effective working relationship	"The assistant [teacher] is young and has not been doing his job."
Teaching	the teacher reports an issue with any of the following: (a) motivating students, (b) being fair, supportive and honest with students and their parents, (c) having expectations in the classroom that are not met, (d) student behavior and classroom management, (e) addressing individual student learning needs, and (f) dealing with parents	"…the kid isn't doing anything…" "Their child is doing well for what that child is capable of doing, but compared to her peers, [she] is one of the lowest performing students." "I try my best to get students on the same teams with at least one friend…"

		"…I can count on my hand how many [students] pass up the opportunity to receive extra points, then… after I graded the exams, they still failed."
Personal Matters	the teacher reports a personal issue including: (a) feeling ill, (b) dealing with frustrations and stress, and (c) managing time in order to complete everything in a timely manner and by its due date	"…controlling my anger and frustration with my students…" "There are also days/weeks that make me wonder how I will even make it through the year." "…bacteria, germs, [me] getting sick…" "…biggest problem is getting all my grades calculated and reported into the computer by 8am." "I have a tough time keeping up."
No Problem	teacher indicates that there is no problem	"I really didn't have any problems this week."

Looking at the table alone, the context of the problems reported is not detailed. In the section below I will give some additional quotes from the data to further illustrate each category.

Additional Examples from Each Problem Category

Outside Testing. This category deals with issues of outside testing. An example from the data follows.
Prepping students for the upcoming ELA's [English Language Arts examinations]. Being a school under review, we are pressured to prepare students daily for these tests.

Resources. This category deals with difficulties teachers experienced gathering the materials they needed in their work. Two examples follow.
Our school is piloting the effectiveness of using digital multimedia projectors in the science classrooms. Since I am a new teacher, I don't get to participate. In other words, I don't get a digital projector installed in my room. This is a problem because I know I would use it every day for PowerPoint notes, internet websites/animations, student projects, etc.

Having enough money to run my program. I just got my budget for next year - $150 for general music and chorus. It's insane! That means I have to spend a lot more time fund raising for essentials – music, instruments, materials, etc.

Bureaucracy. This category includes problems teachers reported dealing with the larger "system" of schooling over which the individual teacher has little influence. Some examples are reported below.

My biggest problem this week was trying to figure out how my concert is going to be run. There was a chorus concert this week and there were a lot of people who came to the concert who were unable to have a seat. Our auditorium is small (600 seats) and there are 270 children in the chorus.

The biggest problem I had this week was the unscheduled and scheduled interruptions to my class instruction time. Between two days with one hour delays (we only have 36 minute periods those days instead of 41 minutes), scheduled assemblies that eat up 2 hours of class time, and students going on various fields trips or leaving class for instrumental lessons it seems that academics are secondary to all else! It's frustrating when I feel pressed for time already and it seems like some of the interruptions can be avoided.

Colleagues. The problems in this category deal with issues that teachers experience in working with other professionals in their buildings and districts. Two examples are included.

School politics – teachers are divided into factions. Some support and respect the administration and some do everything in their power to tear down and degrade the administration. I just want to do my job well. I am sick of listening to people complain and describe their encounters with people who dislike the administration.

My biggest problem this week was lack of support in my [special education] class. I have a teacher assistant. The assistant is young and has not been doing his job. Almost every day he is late and sometimes never comes at all.

Teaching. Problems fell into this category when they dealt with the specifics of teaching duties and working with children. Examples are included.

Biggest problem is trying to get students motivated to turn in assignments on time and be interested in getting good grades.

Trying to get my next unit planned and sent to the printers. I haven't taught meteorology before, so I had to look through the NY State EScience [Earth science] curriculum guide to see what I actually need to teach.

I had a female student (7th grade) write that I was a sexist on my board last week. When confronted she made an inappropriate comment about me and some 7th grade girls (a blatant lie).

We have a big problem with student violence. On Thursday I had a steak knife turned in by a student. He found it in the hallway. Group violence is also a problem. Students call their "posses" to settle disputes. On Friday I overheard a student making just such a call on her cell phone…

Biggest problem – grading research papers fairly. I collected senior research papers on Friday. I have some students who have diligently worked for six weeks on this project. Others did nothing until the night before. Yet the ones who worked hard are not always the ones who produce the best papers. I also have trouble knowing when to accuse someone of plagiarizing.

…my biggest problem this week was an issue with a parent… A mom pulled me aside after school and was fairly aggressive in her disapproval of the project and using the internet to find information.

I am finding it difficult to obtain a balance with a difficult class between maintaining discipline in my classroom and keeping the lessons fun, interesting, and

engaging so lasting learning can occur.

Personal Matters. This category includes problems that teachers reported that had to do with themselves and their own lives. Several examples are included below.

My biggest problem this week would be lack of time and energy. I was sent to 2 days of [professional development], which entails relearning all the stuff you are taught in pre-service teaching. It was painfully boring at times…

My biggest problem this week is depression. I write about it because the depression is the direct result of my job in teaching… In my job as a teacher, I'm isolated in the classroom and have very few friends at school…

My biggest problem was dealing with the stress of the job…

I am struggling with picking a long-term direction for my life. There are many days where I am bursting with excitement to teach. However, there are also days/weeks that make me wonder how I will ever make it through the year. I have many other interests. I have other dreams that I have never pursued which look extremely appealing from this side…

Discussion and Implications

Although teacher education has changed over the years as more programs have increased the amount of time pre-service teachers spend in the field, many problems reported by novice teachers in this study have been reflected in previous studies. This suggests that, although changes have been made in teacher education programs, they are not substantial enough to overcome many of the problems novice teachers typically experience.

Previous studies have not described Personal Matters problems as a separate and discrete category of concerns. The large number of problems in this category in the current study suggests that this is an important group of problems that has been largely overlooked in previous studies. Other studies have reported that teachers feel some job stress, but the number of times that was mentioned in the current study suggests that teacher problems regarding feeling well, dealing well with stress, and handling frustration with their students and in their personal lives, is an underreported problem. Few other studies report issues such as the teacher being ill and having to deal with working (or calling in a substitute) while feeling the effects of a cold or the flu.

The current study found that it is not sufficient to say that teachers feel their jobs involve a certain amount of stress, as other studies have reported. In fact, so many problems of this type were reported that it lead to the development of an entirely separate category (Personal Matters).

Another result of this study that has not been widely reported in the existing literature is the problem of school violence. Other studies (e.g., Ganser, 1999; Beach & Pearson, 1998; Britt, 1997; Intrator, 2006) have cited novice teacher problems in the areas of classroom management and wanting to have an orderly school. Violence may be included under those topics, but this was not made clear in those studies. This study found a number of references by novice teachers specifically to student fights and students threatening or planning to fight one another. If violence was included in other studies, it must have been included generally under classroom management and given the same weight as students who are talkative or otherwise unruly, but not dangerous.

Some problems reported in this study are consistent with those other studies have described. Problems with classroom management, dealing with parents, and finding appropriate classroom resources have been

reported in the literature before and are also found in the current study. Studies conducted by researchers such as Beach and Pearson (1998), Britt (1997), Broadband and Cruickshank (1965), Chubbuck, et al. (2001), Cruickshank, Kennedy, and Myers (1975), Hertzog (2002), Houston, McDavid, and Marshall (1990), Kent (2000), Nicholson & Heidenreich (2007), Odell, Loughlin & Ferrarro (1987), Stroot, Fowlkes, Langholz, J., Paxton, Stedman & Steffes, L. (1999), and Veenman (1984) report some of the same problems as found in this study. Although these studies sometimes used different terms than the current study, the problems they report are consistent with the categories found in this study.

Implications for Teacher Education Programs

Teacher education programs should make note of these problem categories and address them first by making these issues known to novice teachers and then helping them see these types of issues through early field experiences. When people know what is common and likely to occur, they may be better able to work through issues.

Some studies suggest that new teachers initially looking back on their preparation program invariably find it was not as valuable as they might have wanted. These researchers do not suggest that the teacher's preparation program was not valuable, but that sometimes beginning teachers do not initially feel that they were well educated by their preparation program. Fuller and Bown (1975) and Kagan (1992) note that beginning teachers often express frustration with what their teacher education program did not provide, and teacher education courses are criticized for not offering enough practice in the form of field experiences as well as not providing sufficient knowledge of classroom procedures. Beginning teachers do not always seem to see the relevance of readings in addition to the real classroom experiences (Feiman-Nemser & Buchmann, 1985).

Perhaps the most lasting impact of teacher preparation programs on pre-service teachers is the field experience component so classroom experience is included as part of courses and is the culminating experience of a teacher preparation program in the form of the student teaching semester. Field experiences allow for pre-service teachers to see how the theory they have been learning in their university courses plays out in the real classroom (Mager, 1987). The student teaching semester can also help to solidify pre-service teacher's beliefs about teaching (Zeichner & Tabachnick, 1981). This, in turn, influences the teacher's career.

Typically, the field experience is offered later in pre-service teacher's programs; however, in the last 10 years, there has been an increasing call for involving pre-service teachers in field experiences earlier in their teacher preparation programs (Aiken & Day, 1999; Bergee, 2006; Sears, Cavallaro & Hall, 2004). I suggest that teacher education programs be developed around the problem categories found in this study and incorporate study of these problems into early field experiences. That is, attention be paid to preparing novice teachers to deal with the problems they are likely to face in their first few years of teaching and this must be coupled with immersing pre-service teachers in early field experiences where they can begin to teach and experience problems. By offering field experiences incorporated with college classroom study early and continuing throughout a program of study, pre-service teachers can experience and work though problems in the relatively safe environment of the college classroom.

Pre-service teachers prepared with a strong focus in actual classroom experience coupled with debriefing and working through issues in the college classroom may be better able to deal with the issues this study suggests they will confront as novice teachers. A teacher education program designed in this way would not only incorporate early field experiences, but would also look at each facet of teaching from a perspective of identifying problems and addressing them. Such a program might start by asking pre-service teachers to interview and

observe their host teachers to see what kinds of problems these teachers have and how they address them. To help address problems in the Teaching category, the program might then progress to having pre-service teachers conduct micro-teaching lessons both in their campus courses and in the field. They would serve to break down these lessons and describe problems they encountered and these problems would then form a basis for beginning to talk about ways to address problems in teaching. This would be especially valuable during the student teaching semester, but must be started very early in the teacher education program.

Conclusions and Directions for Future Research

This article has examined the problems of novice teachers at the secondary level by collecting survey data. Teacher problems were then categorized into six groups (and "no problem") as follows: Outside testing, Resources, Bureaucracy, Colleagues, Teaching, and Personal matters. While some of these problems are consistent with those reported in other literature, the category of Personal matters has not been mentioned widely. The many problems reported within this category suggest that this is an area that should be further examined and the categories in their entirety should be used to revise the current ways that teachers are prepared.

It is important to note that this study asked teachers to identify their biggest problem of the week. This question assumes that teaching is an activity that has problems (or things that must be addressed). I might have reported different results if I first asked teachers if they had a big problem during the week. Likewise, I only allowed teachers to describe one problem. In this way they had to choose the problem that they felt was the biggest to them, but this may not describe the full range of issues and problems a particular respondent had during the data collection period. Had teachers been able to describe more than one problem, this study might look quite different. Future studies might examine this issue to

determine more details about problems as experienced by novices.

Additionally, this study looked only at teacher problems during a 10 week period part way through the school year. There may be other categories of problems that occur during other parts of the school year. For example, during the beginning of the school year, teachers may experience a wider range of Bureaucracy problems as they get new groups of students and must deal with handing out textbooks and other materials, dealing with students who drop and add their class, and learning new building procedures or things that have changed over the summer. A school-year long study would follow nicely on this work to determine the consistency of this category system across the school year.

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Enhancing Teacher Education with Service Learning: Experiences in an Educational Technology Course

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Abstract: Teacher education programs are being challenged to ground instruction in real-life situations, and to do more for the communities in which they reside. To address these needs, a pre-service educational technology course was redesigned to engage students in service learning activities to provide resources for schools serving low-income minority students.

Introduction

New theories and approaches to learning and instruction are challenging those of us in the areas of instructional technology and teacher education to rethink the ways in which we prepare new professionals in these disciplines. The need to maintain professional currency and competency in the areas of research, pedagogy and technologies is as important as ever. However, these are to be balanced by increased sensitivity to the diversity of the populations to be served by those graduating from our teacher education programs (Subramony, 2004). University faculty are encouraged to provide learning experiences that are relevant, authentic and grounded in real-life situations (Bednar, Cunningham, Duffy & Perry, 1995; Driscoll, 2006), while higher education institutions are asked to give back to the community in tangible and demonstrable ways (Butcher, Howard, Labone, Smith, McFadden, McMeniman, Malone, & Martinez, 2003).

One educational innovation that seeks to meet these challenges is service learning. Service learning, according to Eyler & Giles (1999), is a form of experiential education where learning occurs through a cycle of action and reflection. Students work with others through a process of applying what they are learning in their classrooms to actual community problems. They reflect upon their experiences as they seek to achieve real objectives for the community and deeper understanding and skills for themselves.

In this paper, I outline the basic concepts of service learning and how it relates to current views of learning and instruction. I describe the integration of service learning into "Computer Based Technology in Education," a required course for both the elementary and secondary professional teaching credentials and the Master of Arts degree in instructional technology at a mid-sized state university.

Service Learning

Service learning is both a philosophy of education and an instructional method (Anderson, 1998; Butcher et al, 2003). The National Society for Experiential Education defines service learning as "any carefully monitored service experience in which a student has intentional learning goals and reflects actively on what he or she is learning throughout the experience" (Furco, 1994, p. 2). The characteristics of service learning, according to the Corporation for National and Community Service (2004) are:

- Promotion of learning through active participation in service experiences
- Structured time for students to reflect by thinking, discussing and/or writing about their service experience
- Opportunities for students to use skills and knowledge in real-life situations
- Extension of learning beyond the classroom and into the community

Service learning is distinguished from other forms of community service by "the integration of study with hands-on activity outside the classroom, typically through a collaborative effort to address a community problem" (Carpini & Keeter, 2000, p. 635). In other words, it is community service with the added component of a desired educational outcome (Butcher et al, 2003).

Service and Learning

By connecting academic learning with real-life experience, students participating in service-learning activities can gain a deeper understanding of the relationship of the content of their college course to everyday life outside the classroom (Michael, 2001; Zuga, 1992). They can encounter and address real community needs, such as the digital divide, from the "front lines" (Walston, 2002). According to Folkestad and his associates, "Solving a typical service learning problem requires a deeper understanding of the meaning of technical alternatives than the simple aggregation of technical facts. It also requires the application of these facts in a particular concrete situation" (Folkestad, Senior & DeMiranda, 2002, p. 53). Edwards (2003) describes service learning as a constructivist method:

> "Service learning can be defined as a method that helps students develop their own learning through active participation in thoughtfully organized service experience…(service learning) provides participants with opportunities to use newly acquired skills and knowledge in real-life situations and gives students the opportunity to extend their learning beyond classroom walls…Service learning, the fuel that makes hands on, experiential learning extend beyond the classroom, will take curriculum and put it in the students' control. Together the result becomes a constructivist's idea of what education should be: students responsible for their own learning and learning that takes place by doing in authentic situations" (Edwards, 2003, p. 8-9).

Research conducted by the Higher Education Research Institute at UCLA involving 3,450 students at 42 institutions, concluded that students involved in service learning significantly increased their interpersonal, communication, conflict resolution and cooperative work skills and also improved their understanding of community and national societal problems (Sax & Astin, 1997). Studies have also found positive gains in critical thinking, grades, attendance and motivation (e.g. Carter, 1998; Eyler, Giles & Braxton, 1997; Sax & Astin, 1997).

Service Learning Growth
In the past several years, service-learning has spread rapidly throughout communities, K-12 schools, and institutions of higher education. Campus Compact at Brown University has published information on trends in community involvement and service at colleges and universities since 1999. In its 2006 survey of member institutions, Campus Compact found that 32% of the more than 6.5 million students at its 1,045 member colleges and universities (an estimated 2.1 million) had been involved in service learning during the previous year (Campus Compact, 2007). Service learning has been integrated into the curricula of disciplines as diverse as engineering (Coyle Jamieson, & Sommers, 1997), political science (Reilly, 2004), education (Piña, 2004; Rowls & Swick, 2000), archaeology (Nassaney, 2004), health (Denner, Coyle, Robin & Banspach, 2005) and psychology (Ozorak, 2003).

Project

The Course
Computer Based Technology in Education, a four credit-hour graduate-level course, was required for all students enrolled in the elementary or secondary teacher education programs at the university. This course satisfied the state's technology requirement for the professional teaching credential and also satisfied a course requirement for the Master of Arts degree in instructional technology offered by the State University. I taught this course in a hybrid (blended) format (Lim, Morris & Kupritz, 2007) with 70% of the class sessions meeting face-to-face and 30% offered online. Students enrolled in my course engaged in a number of technology integration activities, including participation in online discussion forums, evaluation of educational software, identification and annotation of web resources for teachers, creation of personal and academic web pages, digitizing and optimizing of images for web display, observation of technology-using teachers, and creation of lessons accompanied by multimedia presentations.

According to research conducted by the Corporation for National and Community Service and by the Service Learning Research and Development Center at UC Berkeley, the institutionalization of service learning occurs more rapidly when it can be integrated into required or core courses, rather than into peripheral or elective courses (Colbeck 2002; CNCS, 2004; Furco, 1999). Computer Based Technology in Education was both required and offered every term. It was always in demand and usually reached its capacity enrollment. This provided a choice opportunity to integrate service learning in a meaningful way for those preparing to dedicate their careers to serving students.

The Students and Previous Practicum Activities
The 30 students enrolled in my Computer Based Technology in Education course were teacher education students who had completed their bachelors' degrees and were taking the course to fulfill the technology requirement for their elementary or secondary teaching certificates. Prior to enrolling in my course, most of their teacher education activities had occurred in college classrooms, rather than in the school environment in which they would be working. The practicum activities outside the classroom consisted primarily of observing practicing teachers at various school sites. Computer Based Technology in Education followed this same model of requiring an observation of teachers as the school-based practicum activity. None of my students had prior experience with service learning in any of their teacher education classes.

The Context
To establish the conditions under which the service learning activities would occur, I identified K-12 schools in our target area and met with the principals of these schools. The principals were acquainted with the concept of service learning and were very supportive of my request to have my students engage in service learning at their schools. Meetings were set at the schools to recruit "partner teachers" who would work collaboratively

with my students. Each of these teachers was asked to identify specific curricular areas or topics that they found especially challenging for their students to learn. The teachers were asked to communicate these needs to my students and to allow my students to visit their classrooms and deliver multimedia-enhanced lessons to their students. In return for their efforts, the students would design instructional and reference materials tailored to the needs of the partner teachers. The partner teachers would receive free print and digital copies of these materials for their own use.

I also received valuable advice and guidance from the service learning coordinators at the main and branch campuses of the university. As a result of this guidance, I applied for and received a service learning fellowship and grant to support the redesign of Computer Based Technology in Education to include a significant service learning component.

Integrating Service Learning

The redesign of Computer Based Technology in Education required that I relinquish some of the control that I had previously exercised with regard to the course assignments (Edwards, 2003). Rather than prescribe the content and structure of the assignments, these were negotiated between my students and their partner teachers. The result was a series of activities that addressed specific needs of the partner teachers, while also fulfilling the required learning objectives for Computer Technology in Education established by the university. The activities are described briefly below.

Activity 1: Selection and Evaluation of Educational Software
The partner teachers were concerned that the computers in their classrooms were being used by students primarily for web surfing and for tool applications, such as word processing, rather than for learning activities. The objective for this assignment was that my students would be able to locate and evaluate educational software. After receiving a list of curricular topics of interest from the partner

teachers, my students searched for examples of commercial, shareware and freeware educational software from sites such as SchoolExpress (www.schoolexpress.com), Educational Freeware (www.educational-freeware.com) and C/Net (www.download.com). They conducted formal evaluations of the programs using a software evaluation checklist derived from Forcier & Descy (2002) and Merrill, Hammons, Vincent, Reynolds, Christensen & Tolman (1996). As they ran the various software programs, the students looked for the curricular, instructional design and technical aspects of the programs as addressed in the checklists. Once they had completed the checklists, my students wrote brief evaluation reports that described the objectives, strengths and weaknesses of each software title. Copies of all materials were delivered to each student's partner teacher and additional copies were turned in to me.

Activity 2: Online Resources for Technology Security and Acceptable Use
The partner teachers varied widely in their knowledge of current technology issues affecting education, including copyright, fair use, software piracy, computer viruses, Internet privacy, online scams and hoaxes, spam and cookies. The objective for this assignment was that my students would be able to identify, evaluate and annotate web-based resources relating to these topics. In order to prevent "information overload," the students were charged with identifying web sites that were comprehensive, yet user-friendly and not too wordy. The deliverable for the assignment was a list of student-reviewed and annotated online resources for teachers. One copy of the list was delivered to each partner teacher and another copy was turned in to me.

Activity 3: Online Resources for Teaching and Learning
Nearly all of the partner teachers were unaware of the breadth of teaching and learning materials and resources that were available online. For this assignment, the objective was that my students would be able identify, evaluate and annotate web-based resource sites

for lesson plans, comprehensive teacher references, online lessons, homework helps, student resources and web quests. After meeting with partner teachers to determine their curricular needs, the students investigated a wide variety of websites, evaluated them and created an annotated list of online teaching and learning resources. Once they had completed this activity, my students gave copies of the annotated resources to their partner teachers and turned in copies to me.

Activity 4: Multimedia Lesson (Final Project)
For this assignment, my students applied the skills in multimedia production that they had learned in the class by designing, developing and teaching a lesson using researched content, digitized images and presentation software. The topic of the lesson was decided by my students in cooperation with their partner teachers. Dates and times to visit the partner teachers' classrooms were negotiated and my students taught their lessons at the schools to the partner teachers' students. The partner teachers and I were giving copies of the lesson materials on a CD-ROM.

Activity 5: Reflection
The reflection assignment, identified in the literature as an essential component of service learning (e.g. CNCS, 2004; Edwards, 2003; Eyler & Giles, 1999), was a new addition to this course. The reflection assignment consisted of a written reflection report where students were asked to describe the projects that they completed for their partner teachers, state the biggest advantages and challenges of their service learning experience and explain why service learning could or could not be an effective strategy for pre-service teacher education.

Evaluation

To evaluate the success of my efforts to integrate of service learning into Computer Based Technologies in Education, I sought to collect data from a variety of sources and triangulate the findings to strengthen their validity. To determine the effect of service learning on the quality of student work, I

utilized scoring rubrics to compare the assignment scores of my current students with scores from students in the two previous terms of the course. To determine the quality of the service learning experience versus field observation as an instructional method, I analyzed my students' reflection papers and conducted semi-structured interviews with them (Patton, 1990). The students were asked to compare and contrast the service learning experience with the field observation experiences in their other teacher education courses. These interviews were conducted after all assignments had been graded, so the students were aware that their answers would have no bearing on their course grade. I also interviewed ten students who had previously taken my course without the service learning components to compare their classroom technology observation assignment from my course to their other field observation experiences. In addition, I interviewed the partner teachers and their principals to determine whether they felt that service learning was a worthwhile activity for teacher education and how service learning compared to other pre-service field activities. Notes were taken during the interviews and the answers were categorized into common themes.

Results

Current Students

Results of the interviews and the written reflection assignment revealed that students who participated in the service learning activities considered service learning to be a worthwhile endeavor that enhanced their learning experience. They indicated that the opportunity to use and implement technology-infused instruction in "real-life" settings at schools, allowed them to become more comfortable with using technology in their own teaching. The following quotes are representative:

Student A: "Presenting the lesson to a live classroom was a very valuable experience. Seeing the reaction of the students gives you an idea of what works and what doesn't—this was the best part of the experience."

Student B: "I stated my objectives and behavior expectations early and the kids responded wonderfully. The content was Language Arts/Sentence Structure using a direct instruction style. It was amazing (and the best part of the experience) to see all their faces on the screen and really trying their best to participate. What a great feeling to introduce a lesson supported with technology to kids who rarely get the opportunity to experience anything like it."

Nearly all students who participated in the service learning experience expressed that it should be a continuing part of the course (and of other teacher education courses) and that it made the content of the course more relevant and meaningful to them. They also appreciated the opportunity to establish a professional network with their cooperating teachers. The following two quotes are representative:

Student C: "The best part of the service learning experience was having a purpose behind each assignment. As a student teacher who was unsure of my future placement, it made the learning experience more useful to have a focus. With the abundance of information on the internet concerning current issues and software evaluations I was able to limit my search and complete my paper in a timely fashion. I received immense enjoyment knowing that I was able to give a little to the profession that I am entering."

Student D: "I was very happy with the overall outcome of the experience. I know that my lessons will be easier for me in math because I can answer any questions that come up. The response from the students, their teacher and the visiting teacher were very gratifying."

Student E: "I believe that service learning can be an effective strategy in pre-service teacher education. I am a proponent of service learning for the specific fact that it gives a purpose to the lessons that we are required to complete. It is also beneficial for students within the curriculum program to have contacts at a variety of schools."

Only one student expressed doubt as to the viability of service learning:

Student F: "…I really wasn't confident in the subject matter. I am going to teach 8th grade Algebra and the lesson I taught was 6th grade Language Arts. The teacher did not give me enough feedback before I created the lesson, so I did it essentially by the seat of my pants…I enjoyed my service learning experience, but I'm not sure if it would be an effective strategy in pre-service teacher education. Each teacher presents material to the students in different ways. For example, when I learned to subtract numbers we said 'borrow' to mean using the next column of numbers. Now they say 'regroup'. When I said the word 'borrow' to my son, I completely confused him."

When asked to compare the service learning experience to the field observations performed in their other courses, my students were in agreement that both activities were necessary for pre-service teachers. However, they also agreed that service learning was superior to observation, due to the active participation of the learner and the hands-on nature of service learning. The following quotes are representative:

Student G: "While the field observation of classroom teachers is worthwhile, it is a very passive activity. The service learning was much better because it was very active and hands-on. I learn better by doing than by just watching."

Student H: "After completing the service learning, I believe that it can definitely be used as an effective strategy in pre-service learning. This is comparable to the field work that is required in some courses of the credential program. Without this service learning, I would have never been able to experience the Macintosh compatibility dilemma and figure out a solution last moment, as is a very common scenario in the classroom."

Analysis of mean scores on assignments from the current and previous courses showed no significant difference between students in the current course (90.1 percent) versus the previous two terms (89.4 and 89.7 percent).

Former Students
In previous terms of Computer Technology in Education, students completed a field-based activity where they observed a teacher using technology in the classroom, evaluated the use according to specific criteria, interviewed the teacher and wrote an observation report. When asked to compare this assignment with the field observations in their other teacher education courses, all ten of my former students agreed that this assignment was virtually identical in form and function to the field observation assignments in their other courses--the only difference was the technology emphasis of my assignment. Since the students included teachers' technology use during other observation reports, the technology observation assignment in Computer Based Technology in Education did not constitute a unique or novel part of their teacher education experience.

Principals
The principals expressed that the service learning concept was a very good one with the potential to be beneficial, both to their schools and to the university. They said that they would be willing to host more students and would like to see greater collaboration in the future--such as having university students work with their teachers on researching and grant writing. They also felt that since most of their students did not have college-educated parents, having university students visiting their schools exposed their students to positive role models.

Partner Teachers
Reaction from the partner teachers was the most mixed of any of the groups that I interviewed. All expressed appreciation for the free materials and resources created for them by my students and the fact that these were developed according to their specific needs. All were very complimentary of their partner students and reported that having my students visit their classes and interact with their students was a valuable experience, since the university students were very respectful and served as positive role models for the

younger students. Several of the partner teachers stated that the service learning experience was better for the teacher education student than passive teacher observation and that both should be included in the teacher education experience. However, about half of the partner teachers expressed reticence toward the idea of expanding the service learning experience. They complained about being "swamped" and were fearful that increasing the service learning activities would require even more their time and effort.

Challenges

While all parties involved judged the service learning pilot to be successful, it was not without its challenges. The beginning of the service learning class pilot was interrupted when the class was split into two different sections after the first class session. This was due to the university having authorized course enrollments that exceeded the number of available computers. After it was determined that I, rather than another faculty member, would be teaching the second course, a scheduling conflict caused the second section to be moved a different classroom. As a result of these circumstances, the service learning activities were delayed until the fourth class session--two weeks later than originally planned.

Although student feedback regarding the service learning component was overwhelmingly positive, a number of students experienced difficulty in communicating with their partner teachers. The primary method of communicating with the teachers was via e-mail and students complained that e-mail messages were not answered in a timely manner. Since the students were under a deadline to complete their assignments, they felt a greater sense of immediacy than the cooperating teachers.

Technology was another challenge faced by a few students. The university computer lab where they created their materials was Windows-based, but one of the cooperating schools used Macintosh computers for multimedia presentations. As a result, some of the animation "bells and whistles" created in Windows did not work correctly on the school's Macintosh computers. However, as one student reported, the "bells and whistles" may have not been so important after all:

"The school reading specialist watched my presentation and after it was completed she came to me and said that it was 'so cool.' I could hardly believe it, since all of the work I did to make the lesson 'really cool' didn't show up. She was full of questions like how long it took me and was it hard. The lesson that I learned was that you always need to be prepared. Even though the presentation wasn't what I thought it should be, the people who watched it found it to be impressive."

Discussion

As a result of the information gathered from current students, former students, principals and partner teachers, I came to the conclusion that this pilot was successful and that integrating service learning into instructional technology/teacher education curriculum is a viable and a desirable activity. Service learning did not appear to affect the gradable quality of student assignments; however, the service learning component provided my students with a more authentic and active learning environment that was more relevant and motivating to them, provided customized resources for the partner teachers and generated good publicity for the University in the eyes of the principals. The service learning assignments in general, and the classroom-based lesson in particular, were an improvement over the field-based technology observation that I previously required, since my previous assignment did not provide my students with an experience that was different than the field observations in their other classes. The service learning component was judged by students to be a novel and superior addition to my curriculum. I also learned some valuable lessons to make the experience more successful for myself and others.

Give Yourself the Time

First, I learned that it is important to allocate a reasonable amount of time to flesh out your service learning project's goals, objectives and tasks. Successful service learning requires an audience (who), a clearly defined activity (what), an implementation plan (how) a place (where), a time (when), and a reason (why). You must be able to formulate answers to the "who," "what," "how," "when," and "why" questions before you can begin a successful project. Performing the needs assessment, establishing the partnerships and re-designing the course took several weeks of my time and was still going on as the course was beginning.

Establish Partnerships Early On

Schools, churches, health care organizations, civic organizations, non-profit groups, businesses, charitable foundations and many other entities are willing partners for higher education institutions wishing to combine learning with service. A fruitful source of possible partners can be your existing professional or personal network. One of my fellow board members of a local association was a principal whose school became one of my partner schools.

Clarify Roles and Timelines

Difficulties encountered during the service learning pilot could have been avoided if I would have established timelines for partner teacher/student interaction and response. Giving the partner teachers a copy of the students' due dates for assignments would have been helpful. Also providing specific communication as to the roles and responsibilities of the students, partner teachers, principal and me would have made things run smoother as well.

Make it Mandatory

Prior to the implementation of this project, I introduced the idea of service learning to my students in another class and announced that participation in service learning activities would be optional. To my disappointment, a majority of the students opted not to participate in service learning. I realized that even though it appears to go against the grain to require

service (since community service is usually voluntary), many students will not do it if it is not mandatory.

Tie it with Course Objectives (Make it Relevant)

Service for the sake of service, while valuable, is not service <u>learning</u>. A good service learning activity has both learning goals and service goals. If your students ask you, "Why are we doing this?" you should be ready to give both a service answer and a learning answer.

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No Subject Left Behind: A Study of Illinois Elementary Classrooms on the Dilemma of the Impact of High Stakes Testing in Reading and Math, and the Subjects Left Behind.

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Abstract: The No Child Left Behind Act of 2001 (NCLB) appears to have had a significant impact on the elementary school curriculum. While the NCLB calls for improved teaching and learning in all core subject areas, the focus of required testing is only on reading and mathematics.

The No Child Left Behind Act of 2001 (NCLB) appears to have had a significant impact on the elementary school curriculum. While the NCLB calls for improved teaching and learning in all core subject areas including technology, social studies, science and the arts, the focus of required testing is only on reading and mathematics to demonstrate adequate yearly progress (AYP). The high stakes accountability of the testing has many schools and teachers focusing so heavily on reading and mathematics that other subject areas receive less than adequate attention, impacting well rounded and balanced student learning.

The purpose of this study is to determine the extent to which NCLB high-stakes testing impacted the teaching of other subject areas in the curriculum as perceived by elementary teachers in eastern Illinois.

High stakes testing was part of the school curriculum for the past 30 years. In 1983, the focus of the report "A Nation At Risk" was testing and accountability, which in turn surfaced as priorities for the No Child Left Behind Act in 2001. High stakes tests were defined as tests designed to reform the schools, with severe consequences attached if schools did not achieve specific benchmarks in student learning (Wright, 2002). Various studies on the use of standardized tests to measure student achievement provided no credible evidence to support the use of these tests. (Berlak, 2005).

The requirements of NCLB's Adequate Yearly progress, driven by standardized testing, appeared to have the most impact on diverse populations of students. According to a report conducted by the Council for Basic Education (CBE), "The most troubling evidence of curricular narrowing occurred in schools with large minority populations, the very populations whose access to a full liberal arts curriculum has been historically most limited" (2004). In the CBE study, more than 1,000 principals were surveyed from the states of Indiana, Maryland, New Mexico, and New York. These states were chosen for their geographical, political, and socio-economic diversity.

Teaching of the social studies has been especially impacted by the implementation of NCLB. "The proliferation of state standards, high-stakes accountability, and mandates stemming from the No Child Left Behind Act have worked to sever social studies from the common experience in many schools and has prompted a myopic interest in low-level declarative knowledge." (Misco, 2006.) In Maryland, the social studies are no longer tested, and over 50% of principals in K-5 schools reported a decrease in the time spent teaching the social studies. Elementary and middle school students attending low-performing schools in some California districts will not have history until they are sophomores or juniors in high school.

It is worth noting here that major publishers of student reading texts have started to include topics related to families, neighborhoods, historical roots, etc., in an effort to address the diminishing social studies curriculum in elementary schools. In these texts, unit selection titles include historic events, such as "The Night the Revolution Began", and then poses low-level reading comprehension questions, such as "Who was involved in the Boston Tea Party?" According to McGuire (2007), "These low-level reading comprehension questions may be appropriate for teaching reading, but they miss the mark for teaching the conceptual understandings so

important to the social studies." (p. 621). As a teacher educator in elementary social studies and practica, the researcher witnessed first hand this reading textbook "takeover" of the social studies. In a first grade classroom in the fall of 2006, social studies practicum students were directed by their cooperating teacher to have students read stories about Native Americans, with corresponding low-level comprehension questions to follow. This was what constituted an entire social studies lesson in that particular classroom.

The literature reviewed on the impact of NCLB on the elementary curriculum indicated that the teaching of the social studies was greatly reduced, or at least cut back to a bare minimum. Overall, the present body of literature on the impact of NCLB on subjects taught reported the same thing over and over; other areas of the curriculum were reduced, and in some cases nearly eliminated in favor of the teaching of reading and math.

The problematic issues arising with high stakes testing were documented before NCLB was implemented. According to Cawelti (2006), a study that predated NCLB (Hargrove et al., 2000) concluded, "Of greatest concern is the enormous amount of time that is being spent on reading, writing, and mathematics at the cost of instruction in science, social studies, physical education, and the arts" (p. 64). In a related 2006 study on the impact of NCLB by the Center on Education Policy, it was reported that instructional time was reduced in at least one other discipline in order to create more time for reading and mathematics. Some districts in the study reported that struggling students received double periods of math or reading, with the result in missing certain subjects entirely. (Cawelti, 2006, p. 65).

Methodology and Results

A sample of 100 teachers representing school districts in eastern Illinois was selected for this study using a systematic convenience sampling method of those school districts with teacher email address posted on school web sites. A nine question survey was developed using the

LiveText web-based portfolio system form creation module and saved to a public web site. The survey questions were reviewed by selected consultants familiar with the problem and determined to be valid in addressing the purpose of this study.

The use of the web-based system facilitated data collection and the researcher's ability to receive and track responses in a timely manner. Respondents were contacted by email and asked to complete the survey via the internet. The survey was completed by 52% of the sample with no follow-up to non-respondents.

Data were treated using SPSS®. A chi-square analysis was conducted comparing demographic data with substantive questions on the survey. However, due to the small "n" many cells had observed data too small for statistical analysis. Therefore, data were reported using percentages of responses.

The first question asked the respondents to indicate the extent to which they believed NCLB negatively impacted the teaching of subjects not tested by the Illinois Standards Achievement Test. Fifty percent of respondents agreed or strongly agreed and 11% of respondents disagreed.

Table 1
Requirements of NCLB Impacted Teaching
Subjects Not Tested by ISAT

Response	% Responding
Strongly Agree	23.1%
Agree	26.9%
Neutral	38.5%
Disagree	11.%
Strongly Disagree	0%

The second question asked respondents to indicate subjects that received less emphasis in their classrooms. More than sixty-three percent of respondents indicated that the social studies received less emphasis. Nine and six-tenths percent of respondents reported that the language arts received less emphasis.

Table 2
Respondents Reporting Subjects That Received Less Emphasis

Subject Area	% Reporting Less Emphasis
Language Arts	9.6%
Mathematics	3.8%
Science	40.47%
Social Science	63.5%

The third question asked respondents to indicate subjects that received less emphasis because they were not tested by the ISAT. Fifteen point four percent of respondents strongly agreed that subjects received less emphasis because they were not tested; one point nine percent strongly disagreed.

Table 3
Subjects Receiving Less Emphasis Because They Are Not Tested by the ISAT

Response	% Responding
Strongly Agree	15.4%
Agree	42.3%
Neutral	34.6%
Disagree	1.9%
Strongly Disagree	1.9%

The fourth question asked respondents to indicate if they would spend more time on subjects receiving less emphasis if they were tested. Thirteen point five percent of respondents strongly agreed; One and nine-tenths percent strongly disagreed.

Table 4
If the Subjects Were Tested I Would Spend More Time Teaching Them

Response	% Responding
Strongly Agree	13.5%
Agree	55.8%
Neutral	19.2%
Disagree	7.7%
Strongly Disagree	1.9%

Respondents were asked to indicate the percentage of the day teaching subjects other than reading and math. Responses indicated that 78.8% of respondents spent less than 50% of the day teaching subjects other than reading and math. Over 21% of respondents spent more than 50% of the day teaching math and reading.

Table 5
Percentage of Day Spent Teaching Subjects Other than Reading and Math

Response	% Responding
< 20%	13.5%
21-30%	34.6%
31-40%	26.9%
41-50%	3.8%
51-60%	11.5%
> 60%	5.8%

Over 50% of respondents described the community in which the school was located as rural, and 44.2% of respondent's schools were located in suburban or urban communities.

Table 6
Type of Community in Which School is Located

Response	% Responding
Rural	50.0%
Rural, Suburban	1.9%
Suburban	40.4%
Urban	3.8%

Discussion

The purpose of this study is to determine the extent to which NCLB high-stakes testing impacted the teaching of other subject areas in the curriculum as perceived by elementary teachers in eastern Illinois. Based upon the data collected in this study it was found that NCLB impacted teaching of subjects not tested. Evidence of this was shown by respondents reporting that most of the day was devoted to the teaching of math and reading, and social studies and sciences appear to be neglected.

The data also showed that the neglected subjects were not being taught because they were not tested. Respondents also reported that if neglected subjects were tested, they would be taught. Therefore, based upon these data is could be concluded that the testing requirements of NCLB impacted the extent to which various subjects are taught in elementary classrooms.

There are implications for teacher education that can be concluded from this study. Teacher education programs that prepare elementary level teachers develop educators to teach all subjects at all grade levels. However, the reality of practice appears to be that they primarily teach selected subjects. Therefore, teacher preparation programs should explore the development of methodologies that encourage creative interdisciplinary approaches to teaching to ensure that all subject areas are taught. While this study did not address the impact of school administrators on what is emphasized in teaching, anecdotal data volunteered by respondents indicated that in many cases they were directed to place emphasis on specific subjects by their school administrators. This may have implications for teacher education programs that prepare school administrators and needs to be explored further.

Since this was a pilot study to determine if more extensive research was to be completed, the following recommendations are for further research on the topic:

- Refine survey questions
- Use a larger sample
- The larger sample will allow for cross tabulations with data collected to explore whether there are relationships among responses by
  - Grade Level
  - Teacher Experience
  - Type of school
  - Size of school
- Consider the impact of school administrators on the curriculum

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Teacher Education, Beliefs and Actions Regarding Handwriting during the Elementary Years in Alabama
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Abstract: This study investigated the consistency and formality of policies regarding handwriting instruction and remediation in Alabama elementary schools. In addition, it examined the training and attitudes of teachers toward handwriting instruction and remediation. The data collected indicated that elementary teachers value handwriting throughout the educational process. However, the programs, policies, and practices that currently exist regarding handwriting are not consistent, formal, or adequate. The results of this study indicate the need for improved teacher education, defined policies, and more involvement from professionals who specialize in handwriting.

Introduction to Handwriting

Handwriting is a primary participatory activity and skill for elementary school children. Elementary school children spend as much as 60% of their academic day involved in activities requiring legible handwriting (Rosenblum, Weiss, & Parush, 2003). Handwriting is separate from, and not indicative of, cognitive skill or effort (Rodgers & Case-Smith, 2002). However, it has the potential to affect academic performance and set the tone for children's beliefs regarding their academic potential and ability (Sovik & Arntzen, 1986). Handwriting serves as a foundational skill. It is through legible handwriting that children communicate their cognitive abilities. Yet, handwriting is often ignored and/or misunderstood, by educators, as an important aspect of the learning process and a potential area for difficulty and/or learning disability (Dyer, 1992).

Handwriting is a vital sub-skill of academic learning and is especially important in areas of composition and math (Hackney, 1992). It is a skill strongly tied to central nervous system development, not effort, intellect or work ethic.

Though most children will eventually master the process and develop legible handwriting, the attitudes that are developed in the early academic years by children who struggle with handwriting may impact their learning well into the future. In addition, illegible handwriting may be indicative of a deeper learning disability (Dyers, 1992).

Children who lack legible handwriting may struggle to complete daily assignments or turn in assignments that are regarded as sloppy, incorrect or incomplete. Research has demonstrated that children with poor handwriting produce shorter, less complex compositions, from the earliest years (Pressler, 2006; Graham, Weintraub, & Berninger, 1998). Because handwriting is required in almost every subject, children are likely to feel exhausted and bewildered over their inability to successfully or correctly complete the day's assignments (Case-Smith, 2001). Spelling words and math problems may be missed because of poor letter or number formation, not due to a lack of cognitive understanding or knowledge. As a result, children who struggle with illegible handwriting may develop the perception that they are not proficient in math, composition, or spelling. This erroneous perception may be compounded by a lack of teacher education/understanding and policy direction on the part of the school administration (Troia & Graham, 2003).

The increased use of computers has not negated the need for legible handwriting. Handwriting problems may affect academic performance to the degree that effects are seen in multiple areas of life, including a loss of self-confidence, loss of academic drive, and even consequences for career prospects (Sassoon, 1997). Legible handwriting is needed for taking notes, for occupational requirements, and now, the Scholastic Aptitude Test (SAT) and the American College Test (ACT) contain handwritten essay portions (Collegeboard, 2006). Although handwriting is not a component of the scoring criteria, studies have shown that students receive lower scores for quality and ideation if the writing is less legible (Troia & Graham, 2003).

Options are available to assist children who struggle with illegible handwriting. However, before a plan of action can be implemented, educators must understand the handwriting process. Without a clear understanding, appropriate intervention is unlikely.

Teacher Education and Qualifications

Handwriting is one of the most complex occupations of childhood, involving the integration of multiple motor and sensory systems. However, it has become so commonplace that the skill and time required to master it are often underestimated by educators (Greer & Lockman, 1998). As a result, the amount of formal instruction has declined substantially in the last 20 years. Competency with handwriting has been linked to the type of instructional procedures and the material used during the instructional process (Marr, Windsor, & Cermak, 2001). Teachers who understand the handwriting process teach more effectively, spend more time on handwriting, and refer struggling students to appropriate professionals more than those less familiar with the process (Galloway, 2002).

The increased use of computers and the crowding of curriculums are often used to justify the decline of handwriting instruction. However, the more likely culprits are the colleges of education (Bowen, 2003). In the last 20 years, many colleges of education have eliminated instruction on the methodology of handwriting (Bowen, 2003; Dyer, 1992; Gerszberg, 2003; Olsen, 2005). As a result, teachers' knowledge of the handwriting process is often incomplete and lacking (Graham, Weintraub, & Berninger, 1998). In a recent study, 200 primary school teachers were questioned regarding their preparation to teach handwriting; 90% of those polled reported they did not feel prepared to teach handwriting (Bowen, 2003). In reviewing the literature, this seems to be a common theme (Dyer, 1992; Gerszberg, 2003; Olsen, 2005; Troia & Graham, 2003). Teachers who are not properly trained to teach handwriting may lack the knowledge, skills, and strategies to assist children who struggle with handwriting.

The School Curriculum and Handwriting

Handwriting education in America has become increasingly inconsistent and variable (Bowen, 2003). The manuscript format, the amount of time spent on handwriting, the method by which handwriting is assessed, and the method in which it is taught can vary from school to school and teacher to teacher. Handwriting is a multifaceted skill and the appropriate instruction of, and assessment of, the subject can be time consuming and difficult (Woodward & Swinth, 2002). Inadequate teacher education and training, combined with the inconsistency that exists in curriculum design, further inhibits the likelihood of appropriate intervention for children who struggle with handwriting.

The preferred format of manuscript writing utilized across the country varies. Many school systems across the country have chosen to teach the writing style referred to as the Zaner-Bloser, or ball and stick, manuscript method (Barchers, 1994; Bergaman & McLauglin, 1988; Wallace & Schomer, 1994). Others have chosen to teach the D'Nealian method or Italic method of manuscript writing (Graham, Berninger, Weintraub, & Schafer, 1998; Duvall, 1985). Although any format is acceptable, it is important there is consistency in the format chosen by a specific school.

Handwriting may be addressed superficially within school curriculums, yet few schools are truly teaching handwriting (Olsen, 2005). Time is rarely spent on the components of penmanship, and there is usually little time for the traditional practice sessions of copybooks and repetition (Graham et al., 1992; Sedgewick, 1996). In some schools, handwriting has been reduced to short instructional sessions, taught in a group format with little individual instruction or feedback (Koenk, 1986). Other schools have moved to a concept referred to as *whole language writing*. This approach teaches both the content of writing and mechanics of handwriting simultaneously (Dobbie & Askov, 1995). Because handwriting is viewed as a component of the specific subject, individual, explicit handwriting instruction is often non-existent.

Opponents of this format believe teachers and students often confuse the ability to write legibly with the content of the writing. As a result, some children and educators incorrectly equate illegible handwriting with poor composition skills.

The move to whole language writing has been widely accepted by many because it fits into the curriculum. American schools continue to add to curriculum without extending the school days or times. As a result, the combining of handwriting instruction with other courses is often seen as a welcome change. However, without appropriate understanding of the handwriting process, the combining of handwriting with other courses may be ill-advised (Ste-Marie, Clark, Findlay, & Latimer, 2004). When combined with other courses, the early identification of handwriting problems becomes more difficult. It also decreases the likelihood of explicit handwriting instruction, and makes the constancy of said instruction more difficulty to track. In addition, confusion between handwriting ability and cognitive understanding is more likely to occur.

Purpose of the Study

This study surveyed elementary teachers in Alabama in an attempt to discover what education/training and policies and practices are in place regarding handwriting and the teachers' beliefs regarding handwriting in the elementary school years. By assessing the education/training, the current policies and practices, and the beliefs held by teachers, the study was able to assess the need for more defined and consistent policies regarding handwriting in order to promote education and communication between individuals working with children who experience difficulty with handwriting.

Method

The data for this study were collected through the use of a survey instrument designed by the researcher (see Appendix A). The survey instrument was based on a current literature review and contained qualitative and quantitative questions. For purposes of validating the survey instrument, a pilot of the survey instrument was conducted. A test/retest reliability assessment and an internal consistency assessment were performed at two week intervals. Based on the statistical analysis of the test/retest assessment, the survey instrument was determined to be highly stable (correlations of .791-1.0). In addition, questions of concern were flagged and each respondent was interviewed. The comments and responses of the pilot participants were used to modify questions. In order to further validate the research instrument beyond its face and content validity, two professionals who routinely evaluate and treat children with handwriting difficulties reviewed the instrument to ensure the content of each question is consistent with best practice.

A stratified cluster sample of public elementary schools, in the state of Alabama, was used to obtain the data. Two schools were randomly chosen from each of the eight school regions. In total, 16 schools were surveyed. By utilizing this number of schools, approximately 630 individual surveys were disseminated to kindergarten through sixth grade teachers throughout the state.

A total of 315 surveys were returned. This accounts for an apparent 50% return rate. This study was interested in the education/ training, policies and practices, and the attitudes of teachers regarding handwriting in the typical classroom. Therefore, counselors, librarians, music teachers, art teachers, special education, physical education teachers and instructional assistants were not included among the participants in this study.

Results

The study utilized a mixed method design. The information obtained in this study was both quantitative and qualitative. The quantitative data were of the nominal and ordinal level and comprised the majority of the survey. Because these data are nonparametric, descriptive and Chi-Square analyses were utilized to examine the responses. SPSS (Version 14.0) was used

to perform the analyses. A consensus of eighty percent was used as the determinate for consistency.

Open-ended, qualitative questions were utilized for clarification and to allow the subjects to expand on the quantitative responses. Thematic analysis was used to analyze the responses. The data from these questions were transcribed, coded, and analyzed to identify common themes and perceptions.

School Policy and Practices

Questions 2, 3, 4, 5, 6, and 16 of the survey instrument were used to assess the current policy and practices of the schools surveyed. The results strongly indicate there is a great deal of inconsistency and few formal policies regarding the instruction, assessment, or remediation of handwriting. Inconsistency was noted in 5 of the 6 questions addressing policy and practice. This inconsistency is present across the state and within the individual schools.

First, the method by which handwriting is assessed was shown to vary greatly across the state and in a minority of the individual schools. Inconsistency across the state is evident as the majority of respondents (59.4%) reported handwriting is assessed using the *scaled* scoring method. Approximately 18% reported the use of the *traditional letter system* and 20.3% reported not assessing handwriting at all. The individual schools fared better, with only 4 of the 15 schools demonstrating inconsistency in the assessment of handwriting.

Second, inconsistency was noted regarding the method by which handwriting is taught. Across the state, the majority of teachers (54.6%) reported the method varied from teacher to teacher. Thirty-three percent (33%) reported handwriting was taught in conjunction with other subjects, and 9.8% reported handwriting was taught as a separate subject. Only 2 of 15 individual schools reported consistent responses.

A third inconsistency was noted in regard to textbook use. Across the state, 65.1 % of respondents reported using textbooks, with 28.9% reporting no text was used. Only four individual schools demonstrated a consistent response to the use of textbooks, and the consistent response was always "*no textbook used*".

A fourth inconsistency was noted in the method or style of printing taught. Across the state, the majority of schools (69.8%) utilize the Zaner-Bloser method, with 12.4% using the D'Nealian method. Ten of the 15 individual schools (62.5%) reported the consistent use of one method or style. The degree of inconsistency is not as great in this category, but of great concern to this researcher is the fact that 15.2% of respondents reported they did not know which method or style of handwriting was taught at their respective school.

Finally, the respondents were asked if the policies at their school regarding handwriting were adequate. Across the state, 51.1% of respondents reported *no*, with 42.5% reporting *yes*. Qualitative data was also collected from this question, with four distinct themes revealed. First, 97 respondents commented on the theme of *no policy*. Respondents made such statements as, "we do not have any policies," "there are no formal methods for helping children with problems," and "there are no policies; handwriting is not a priority." The second theme centered on consistency. Thirty-six respondents made comments such as, "There is no consistency from year to year or between teachers," "I would like more guidelines for grading and teaching handwriting," and "The teaching and grading of handwriting is left up to the individual teacher." The third theme focused on time, with forty-one responses including such statements as,
"There is not enough time to deal with handwriting problems," "We need more time to emphasize handwriting," and "There is not enough instruction time, especially in the lower grades." The final theme that emerged supported the existing system for the

instruction and grading of handwriting. Nineteen respondents defended the current policies and practices as adequate and made comments such as, "society uses computers so legible handwriting is not necessary," and "handwriting is not as important as reading and math, teachers can handle it on an individual basis."

Only one question, directed at policy and procedure, yielded responses that were uniformly consistent. Respondents, across the state and in individual schools, consistently reported spending less than an hour on handwriting. Ninety percent of the respondents reported spending less than one hour per day on handwriting, with only 3.5% spending an hour or more on handwriting.

Questions 2, 3, 4, 5, 6, and 16 were designed to assess the consistency of current policies and practices regarding the teaching and grading of handwriting. Based on the responses received, it is evident there are few consistent or formal policies for the teaching and assessment of handwriting in this state's public schools. Consistency is lacking across the state and within individual schools for the majority of the areas studied.

Teacher Training, Beliefs and Actions
    Survey questions 1, 7, 8, 9, 10, 11, 12, 13, 14 and 15 were designed to assess the education/ training, beliefs and actions of elementary teachers regarding handwriting. Handwriting is a multi-dimensional skill that requires training and practice. Therefore, it is important to determine the sources by which teachers receive training in order to teach this skill. Item 1of the survey instrument, *Where did you receive information regarding handwriting instruction?*, was used to answer this question. Forty-seven percent of the teachers reported receiving training in their *bachelors program*, 41.5% *reported no formal training*, and 12.6% reported receiving training from *other teachers* or *mentors*. In addition to the options provided on the survey, 19 (6%) respondents listed *elementary school* as their only source for receiving information on handwriting instruction.   The beliefs and

actions of teachers are directly related to their education. Therefore, the lack of education is likely to effect the beliefs and actions of teachers.

In order to assess the beliefs of teachers regarding handwriting, respondents were asked their opinion regarding issues such as the impact of handwriting on academic performance, the adequacy of handwriting assistance programs, the impact of effort, the use of assistive devices, and the most common referral sources for children with difficulty. First, respondents were asked if they believed handwriting could affect other academic areas and impact overall academic success. Seventy-five percent of respondents reported poor handwriting can affect other areas of academics and 70.8% reported poor handwriting has the potential to impact overall academic success. In addition to the quantitative responses for these two questions, qualitative responses were also obtained. These results yielded three distinct themes. First, respondents focused on the idea that handwriting is a form of communication needed for a successful academic career. Respondents made comments such as "assessing academic ability is difficult in all areas when a child has poor handwriting," "if a teacher can't read it, it may be counted wrong," "students who can't read their own writing may struggle when studying for tests," and "handwriting grades can keep a child off the A-B honor roll."

Second, respondents focused on handwriting as an indicator of a student's work ethic. These respondents made comments such as "children with neat handwriting take more time on their work; taking pride in what you do filters into other areas"; "if a child is sloppy, they may adopt this attitude into other areas of school and life"; and "complacent attitudes toward handwriting carries into other subjects." The final theme that emerged from this question was one that followed a *no* response to the question *Do you believe that poor handwriting can impact academic success?* This theme centered on a low perceived importance of handwriting. Respondents made comments

such as "handwriting is no longer important; we have computers for everything"; "doctors frequently have horrible handwriting, and they are smart"; and "academic success comes from the brain, not handwriting." Based on these responses, it is clear there are some serious misconceptions regarding handwriting.

Participants were also questioned regarding the adequacy and formality of their school's programs to identify children with handwriting problems. Fully 87% of respondents reported no formal system in place to identify children with handwriting problems and 76% described the informal method of identifying children with handwriting problems as inadequate.

Next, respondents were asked questions that addressed their beliefs regarding the impact of effort on legibility of handwriting and the teachers' willingness to utilize alternative or adaptive methods for handwriting. Eighty-two percent of the respondents *agreed or strongly agreed* that handwriting could be improved if the child simply exerted more effort. Respondents were also asked if they believed children who struggle with handwriting should be allowed to use adaptive measures such as multiple choice tests, computers, or extra time to complete assignments. The majority of respondents *disagreed* or *strongly disagreed* when asked if children should be allowed these accommodations. Only 14.6% of respondents agreed students should be allowed to use multiple choice tests, 20.9% agreed students should be allowed to use computers, and only 35.6% agreed students with handwriting problems should be allowed extra time to complete class work.

Finally, action outside of normal classroom instruction may be needed to adequately assist a child who struggles with handwriting. Therefore, the respondents were asked to identify which professionals they had previously utilized to assist students with handwriting problems. Of those individuals surveyed, 63.2% of the respondents reported they had never recommended evaluation by any other professional. Only seventeen percent reported referring struggling students to

occupational therapy, 16.8% utilized a special education teacher, and 12.7% referred to resource teachers.

In addition to the descriptive statistics discussed in the previous text, a chi-square analysis was performed on each of the questions addressing beliefs and practices (questions 7-16) to determine if there were differences in the responses based on the level of the teaching degree or the years of experience. Statistical analysis revealed no significant relationship between any of the responses and the level of the teaching degree or the years of teaching experience.

Conclusions

Limitations
This study was specific to the state of Alabama. However, the issues concerning handwriting are not specific to Alabama. This study provides insights into teacher attitudes and practices in Alabama, but it is unlikely the problems identified by this study are specific to Alabama. Some states/schools may be addressing handwriting appropriately, while others may not. Either way, it is important schools examine their practices, policies and teacher understanding of handwriting and respond appropriately.

Summary and Discussion
Handwriting is a life skill that is still important in today's academic setting. Appropriate and consistent instruction is imperative for adequate learning. In order for this to occur, policies and practices regarding handwriting must be consistent and teachers must understand the handwriting process and how to deal with students who have poor handwriting. Based on the result of this study, it is evident this may not be the case. Policies and practices regarding the instruction of handwriting, the assessment of handwriting and the method of handwriting taught are clearly inconsistent in the subject schools. In addition, the majority of respondents report the policies at their schools are inadequate. Many of the respondents report no existing policies or guidance regarding the teaching and grading of

handwriting, and a substantial number of qualitative responses address the need for more time and more defined policies and/or educational opportunities regarding handwriting.

The majority of teachers recognize the importance of handwriting and its impact on academic performance. However, the responses of the subject teachers indicate there is a disconnect between their beliefs and their actions. The majority agreed poor handwriting could affect academic performance and that the system at their school for identifying and assisting children with poor handwriting was not adequate. Yet, the majority of teachers reported never referring struggling students to appropriate professionals, or supported the use of adaptations or assistive devices. This disconnect, is most likely due to a lack of policy and/or directions within the school or school district and a lack of education beginning at the collegiate level. In addition, false beliefs such as handwriting ability being reflective of work ethic, or the decrease in the importance of handwriting, were evident in many of the responses. These beliefs clearly contradict current literature and best practice. The fact there was no significant difference in the beliefs and actions of teachers based on the years of experience or the level of education indicates attitudes and practices related to handwriting are deeply embedded in the culture of the current educational system.

Recommendations

Despite the increasing use of computers and other technology, proficient handwriting continues to be a primary skill for academic achievement. From elementary school to professional life, poor handwriting has the potential to limit the success of an individual. Therefore, it is imperative educators examine their handwriting curriculums in order to assure the subject is adequately covered. There are several components needed in order to assure students obtain proficient handwriting.

First, the administration and teachers must recognize the importance of handwriting in the school curriculum and throughout life. They must commit to addressing handwriting as a learned skill and not an automatic act driven by mere effort.

Second, each school must have clear and consistent policies and practices regarding the instruction and assessment of handwriting. The administration and teachers must decide on a specific handwriting format and use it. It is not important which format a school chooses, only that consistency exists from year to year and from teacher to teacher. A consistent method for assessment should also be chosen and based on objective measures, not just visual appeal. In addition, some form of a handwriting curriculum should be utilized to assure a logical sequence for learning and practicing is permitted. Formal handwriting programs, such as *Handwriting Without Tears*, are available on the market today (*Handwriting Without Tears*, 2005). Most of the commercial programs combine handwriting with other courses and take less than fifteen minutes a day. Commercial programs are available, but they are not essential. An independently developed curriculum can be just as effective provided it is developed in a logical sequence and provides the student with consistent feedback and time to practice.

The third component needed to assure proficient handwriting involves teacher education and training. Over the past 20 years, there has been a decline in handwriting instruction at the collegiate level (Bowen, 2003; Dyer, 1992; Gerszberg, 2003; Olsen, 2005). Therefore, there is a need to reintroduce this information as part of the teacher training/education process. As demonstrated by this study and previous studies, many teachers report never receiving any formal instruction regarding handwriting (Bowen, 2003). Therefore, in-services and mentoring relationships are needed to provide current teachers with the information needed to understand the handwriting process.

Finally, teachers and administrators must understand the handwriting process in order to utilize appropriate interventions for students who struggle with handwriting. It may be necessary to refer the child to another professional who specializes in handwriting problems (occupational therapists or educational specialists). In order for this to occur, teachers must recognize when to refer a student for assistance, and administrators must support the referral.

Handwriting remains a valuable and necessary skill for elementary students and adults. Despite the impact of computers and technology, legible handwriting is still needed to complete many daily work assignments, exams, job applications, work orders, and phone messages. It is a skill needed throughout life and should not be ignored by the educational system.

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Appendix A
Teacher Questionnaire
1. Where did you receive information regarding handwriting instruction? (check all that apply) Bachelors Program, Masters Program, EdS Program, Doctoral Program, Conferences, In-service Education, Professional Literature, Mentors, others, never
2. What method does your school use to assess handwriting? Traditional (A, B, C, D, F), Scaled Score (Good, Poor, Satisfactory, Needs Improvement), Something Different, We do not assess handwriting.
3. How is handwriting taught at your school? As a separate subject   in conjunction with other subject matter   varies from teacher to teacher.
4. How much time do you spend on handwriting instruction each day? Less than an hour   about an hour   more than an hour
5. Are you currently using a handwriting text?   Yes   No   if yes, which one_____
6. What method of printing is taught at your school? Zaner-Bloser   D'Nealian   Italic   other_____   Don't know
7. My school has a formal system in place to identify children with handwriting problems. Strongly agree   Agree   Disagree   Strongly Disagree
8. My school has an adequate system in place to help children with poor handwriting. Strongly agree   Agree   Disagree   Strongly Disagree
9. Poor handwriting can affect student performance in other academic subjects. Strongly agree   Agree   Disagree   Strongly Disagree
10. Children with poor handwriting can improve if they put more effort into the task. Strongly agree   Agree   Disagree   Strongly Disagree
11. Children with poor handwriting should be allowed to use multiple choice test in the place of a traditional dictation spelling test. Strongly agree   Agree   Disagree   Strongly Disagree
12. Children with poor handwriting should be allowed more time to complete in class assignments. Strongly agree   Agree   Disagree   Strongly Disagree
13. Children with poor handwriting should be allowed to use a computer for tasks such as spelling tests and English composition. Strongly agree   Agree   Disagree   Strongly Disagree
14. When working with regular education children who have problems with handwriting, I have recommended evaluation by: (check all that apply) Special education teacher, occupational therapist, psychologist, resource teacher, school nurse, none of the above, other
15. Do you believe poor handwriting can impact academic success? YES   NO, please explain
16. Do you think the policies at your school, regarding handwriting, are adequate? YES   NO,   please explain
Demographics: A. What is the highest level of your teaching degree?   Bachelors   Masters   Specialist   Doctoral   *B. How many years have you been teaching?* Less than 5 years   6-10 years   11-15 years   16-20 years   20+ years

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