THE ASPECTS OF URBAN SCHOOLS AND TECHNOLOGY AS VIEWED BY BEGINNING ALTERNATIVE LICENSURE TEACHERS

A Thesis

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ABSTRACT

In order to combat teacher shortages in key areas many schools are turning to alternative teacher licensure programs to fill their needs. The alternative programs can lead to licensure faster than traditional programs, and because the alternative programs tend to cater to local or state shortages, job prospects for participants can be higher. Many of the teachers obtaining licensure through an alternative path are entering service into urban districts, and these teachers tend to come from different backgrounds when compared to other teachers who go through more traditional licensure paths. Because of their differing backgrounds, these new teachers can provide new insight into the issues of an urban school. Qualitative methods were used to gather the information for the study. The responses given by the participants were compared and contrasted for any possible similarities or differences. Several major themes came to light during the analysis: school and student financial situations, teacher's knowledge of the teaching profession and of educational technology, and characteristics of students.
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CHAPTER 1

INTRODUCTION

In order to combat teacher shortages in key areas many schools are turning to alternative teacher licensure programs to fill their needs. The alternative programs can lead to licensure faster than traditional programs, and because the alternative programs tend to cater to local or state shortages, job prospects for participants can be higher. Many of the teachers obtaining licensure through an alternative path are entering service into urban districts, and these teachers tend to come from different backgrounds when compared to other teachers who go through more traditional licensure paths. Because of their differing backgrounds, these new teachers can provide new insight into the issues of an urban school.

The purpose of this study is to examine teachers who are in the process of completing an alternative licensure program. The study will focus on three issues:

1. How do new teachers involved in alternative licensure programs compare their past school experiences with the urban school where they teach?
2. How do new teachers involved in an alternative licensure program view the current state of the urban school where they teach?
3. How does technology fit into their past, present, and future school experiences?
Qualitative methods were used to gather the information for the study. The responses given by the participants were compared and contrasted for any possible similarities or differences.

Definition of Terms

Urban or Inner-City- The US Census Bureau defines “Urban” as, “All territory, population and housing units in urban areas, which include urbanized areas and urban clusters. An urban area generally consists of a large central place and adjacent densely settled census blocks that together have a total population of at least 2,500 for urban clusters, or at least 50,000 for urbanized areas (United States Census Bureau (USCB), 2005).”

Suburban- Populated areas located outside the defined city limits of an urbanized area.

Technology- any type of electronic mechanism, application, or advanced tool used during the educational process in a science classroom; examples are calculator, overhead projector, microscope, or Internet

Technology Use- the implementation of any items listed in the definition of technology during the educational process by teachers and students in a science classroom
CHAPTER 2

REVIEW OF LITERATURE

Alternative Licensure

Teacher alternative licensure programs are an avenue for non-traditional students to obtain a license to teach. The programs often provide a quicker way to become licensed or certified than most of the traditional teacher education programs offered, first and foremost, because most of the participants are able to start teaching while being enrolled in the programs (National Center for Education Information (NCEI), 2005). The alternative programs cater to the needs of the schools in the region, indicating that alternative licensure in one subject or specialty area may not be available in other geographical locations (National Center for Education Information (NCEI), 2005).

Around 538 alternative programs are being offered in 47 different states and the District of Columbia (National Center for Education Information (NCEI), 2005). To gain some insight into the various alternative licensure programs available in the U.S., brief details about these programs will be provided for two states, Ohio and Mississippi. The state of Ohio offers alternative licensure programs, which require prospective teachers to first obtain a Conditional Teaching Permit and then complete a number of requirements to obtain the Alternative Educator License. The Ohio program requires a school district to
employ and provide a mentoring program for the alternative license seeker (Ohio Department of Education (ODE), 2004). The Mississippi Department of Education offers three paths to obtain alternative certification: Mississippi Alternate Path to Quality Teachers, Teach Mississippi Institute Alternate Route, and Master of Arts in Teaching. Each path requires a different set of prerequisites that need to be completed in order to obtain a one year, non-renewable Alternate Route License (Mississippi Department of Education (MDE), 2005).

The purpose of alternative programs can vary, for instance some programs seek to fill teacher vacancies across the state while other programs look to fill openings in high-need districts (i.e. urban schools) (Blair, 2003). By comparing the Ohio and Mississippi licensure programs, variation also exists between teacher educational instructional methods as well.

The President of the National Center for Education Information, Dr. C. Emily Feistritzer, estimates that of the 75,000 new teachers needed each year one-third of those are licensed through some kind of alternative program (Blair, 2003). Many of the individuals searching out these programs are coming to teaching after having worked in other fields, which are not directly related to education (National Center for Education Information (NCEI), 2005). In a study conducted by the National Center for Alternative Certification, 47% of people seeking alternative certification routes would not have gone into teaching without this path available to them (National Center for Education Information (NCEI), 2005). Alternative programs also bring more men and minorities
into the teaching field (Blair, 2003) (National Center for Education Information (NCEI), 2005).

The final destination for these alternatively licensed teachers is very dependent on their educational background and their preparation program. Most alternative teachers in New Mexico find positions in hard-to-fill rural areas (Blair, 2003). Almost all alternative teachers in Michigan and New York take employment in an inner-city school (Blair, 2003). Length of service as a teacher also differs for people who went through the alternative route. Retention rates for these alternatively licensed teachers are higher than traditionally trained teachers. In states with high percentages of alternatively licensed teachers, 87% of these teachers are still teaching after five years (National Center for Education Information (NCEI), 2005).

With so many alternatively licensed teachers entering employment into inner-city schools, it is important for educational researchers to understand some of the challenges that these teachers will face. The problems often associated with inner-city districts are size, funding issues for the school as well as its students, and student diversity (Weiner, 1999).

Urban School Demographics

The size issue for urban schools refers to the levels of bureaucracy and hierarchy within the district. For example, a district in Southern California has over 22,000 students (Wiest, Wong, Cervantes, Craik, & Kreil, 2001). These students must be housed in many different buildings that each have their own administrative hierarchy to go along with the district wide administrative levels. With so many students and employees,
communication can often breakdown resulting in potential stress and isolation for new teachers (Weiner, 1999). Many of the administrators that are overseeing the districts and these new teachers are former instructors themselves with little or no business management skills needed to run such large operations (Rubin, 2003).

Administrators and teachers together must deal with poor school funding due to numerous factors, such as inadequate dispersal of revenues gained by the state from taxes and funding that is attendance based (Reyes & Rodriguez, 2004). Many urban schools deal constantly with high rates of student absenteeism. One explanation for the decrease in attendance in urban schools is a lack of health insurance for the students. Without insurance, students may miss the opportunity to get necessary medication for treatable health conditions, or the students may not receive preventive care provided by the doctor (Reyes & Rodriguez, 2004). Financial difficulties can affect teachers and students beyond supplies and facilities. Even if the urban schools receive new technology, very little if any money is being spent on training the teachers to utilize it in their classrooms. Less than 6% of money earmarked for technology spending goes towards actual professional development of teachers. National guidelines suggest that anywhere from 25-30% of technology spending needs to go into teacher training (Fletcher, 2005).

According to one researcher, “Impoverished children are more likely to be in single-parent families, and, if they live in the inner city, they are seven times more likely to be victims of child abuse or neglect (Truscott & Truscott, 2005).” Either one of these issues can make teaching and learning extremely difficult. Poor children, whether in
urban or rural areas, are overall less likely to graduate from high school (Truscott & Truscott, 2005).

High poverty is just one aspect that needs to be considered when examining student diversity. Inner-city students come from all different types of ethnic and religious backgrounds, so teachers must take into account these variations when preparing lessons and activities for their classes (Weiner, 1999). Many immigrant families move to inner-city regions, because these regions tend to be less expensive. Teachers must be prepared to deal with students that have very little English language skills or lack the ability to function in the American school setting.

Challenges in the Urban School

Teachers in inner-city schools must also deal with high numbers of students who lack motivation. In a study conducted to measure motivationally related variables, the researchers examined 251 juniors and seniors from a southern California school district. Of the students in the study, 104 were in regular classrooms, 93 were in alternative classrooms (for students with low grades/credits and behavior issues), and 54 were in special education classrooms. To no surprise, students with higher academic achievement (students in the regular classroom) showed higher levels of academic confidence. Students in the alternative and special education classrooms both self-reported lower levels of academic confidence. This study also discovered that student’s self-esteem did not differ between the three groups suggesting that poor academics do not detract from their overall self-esteem. Parental involvement was also measured by having students rate
their parents. The alternative education students overall felt their parents were less involved and less supportive than the students in the other two groups. Special education students reported high levels of parent involvement, and students in the regular classroom also reported high levels of parent involvement but not as much as the special education students. Since all three groups reported roughly the same level of teacher warmth and support, the researchers concluded that parent involvement may be more vital to academic success (Wiest, Wong, Cervantes, Craik, & Kreil, 2001). More parent involvement can lead to motivation, which can bring more academic success, and academic success can lead to more motivation.

Students that view academic achievement as important have lower incidents of violence (rape, fighting, threats, and robbery) compared to others, while schools with lower enrollments have fewer reports of serious violence (Larsen, 2003). As indicated earlier urban schools have high enrollment and many students that do not view academics as important to their overall well-being. Violence in school is not a problem unique to the urban setting; however, rural schools are less likely to have incidents of serious violence when compared to urban and suburban districts (Larsen, 2003). Inner-city teachers must attempt to overcome the violence and make their students feel safe in and around their classroom.

Technology in the Classroom

The digital divide is another aspect that sets urban schools apart from other districts. Barbara Monroe, an assistant professor at Washington State University, attempted to define the phrase as follows, “The metaphor of a great chasm- a divide-
polarizes the issue as a matter of simply having, or not having access to the Internet (Monroe, 2004).” The digital divide has also been compared with a balloon that when squeezed to get access for some “bulging disparities, based on wealth, appear elsewhere (Johnston, 2001).” As indicated by Johnston, wealth is a major factor in determining who has computers and Internet access and who does not. In study by Vanderbilt University (Project 2000) the researchers discovered that when comparing economic versus racial attributes when not having computer access, economics was the deciding factor (Bolt, 2000). The ratio of students to a computer is one way of tracking the divide. As of 2001 the National average for students per computer was just over four (Skinner, 2002). The average number of students per computer in an urban district was 5.8(Dianis, 2003), and in 2000 when taking into account computers with Internet access, these numbers rise to 11 students per computer in urban schools (Lonergan, 2000).

Urban schools that have computers and Internet access still differ from their suburban counterparts in how the computers are used. Suburban schools tend to use computers for collaborative learning projects and communication, while urban schools tend to focus on keyboarding and other drill and practice skills (Monroe, 2004). A group of eighth grade students who reported that they used computers in their math class indicated that they used them for playing games or drill and practice exercises. The overall indication is that teachers have not been taught the proper way to integrate the technology into their lessons (Skinner, 2002).

Pre-service teachers now have to complete many technology requirements in order to receive initial licensure. In a study conducted at Morehead State University, 110
undergraduate student teachers were measured for their use of technology in the classroom while teaching. The two largest technology tools used by teachers reported were PowerPoint and the Internet. Of the student teachers in the study, 90% reported moderate or better teaching ability when using word processors or e-mail. Around 40% felt that they needed more training with databases, spreadsheets, statistical packages, and web development (Klecker, Hunt, Hunt, & Lackner, 2003).

Studies conducted on ways to integrate technology into education have shown promise but have also met with problems ranging from lack of teacher professional development to actual breakdown of the technology (Blumenfeld, Fishman, Krajcik, Marx, & Soloway, 2000; Brown & Rojan, 2002). A larger scale technology initiative started in California has meet with greater success. An experimental high school was set up to prepare students for the high wage/skilled positions of the future. The school is not located in a wealthy district and attracts a diverse group of students. The school connected with local businesses to find out what they needed from employees. Their response was “technology capable employees.” The New Technology High School greatly benefited from the fact that it was built around technology, and they did not have to try to fit it into existing facilities (Bolt, 2000).

Alternative licensure programs are extremely important to maintain a flow of new teachers into the schools. The alternatively trained teachers fill hard to staff positions found in many urban areas, which provide numerous obstacles for teachers to overcome. The obstacles range from vast student diversity to district funding issues. Alternative license teachers must also attempt to overcome the digital divide that is separating many
urban districts from their suburban counterparts, but the divide maintains its own set of obstacles that must also be dealt with.

Summary

So how are alternatively licensed teachers handling their new positions with all of the accompanying problems? Very little research on their successes and failures has been documented, and many questions have arisen about the situation. This study will explore alternative licensed teachers prior experiences in education, views on the current state of the urban school, and the role of technology in these settings.
CHAPTER 3

METHODS

Data Collection

The information for the study was gathered via semi-structured, open-ended interviews. The questions for the interviews were created by a panel of three that included two university science education faculty members and the researcher, who is a former science teacher. Background information (personal education experiences, teacher education background, and school background), current teaching views and strategies, and the use of technology in the classroom were the main topics of the interviews (for interview questions see Appendix A).

Participant Selection

Three graduate students seeking alternative teacher licensure through a major Midwestern university agreed to be in the study. The alternative licensure program takes two years for participants to complete. The program requires students to change high schools in between their first and second year. These three individuals were chosen because they were in the last quarter of their program. Three separate interviews per participant were planned by the graduate student researcher, who was not affiliated with the alternative licensure program.
Interviews

The researcher conducted two private interviews with each participant within a two month period. Of the first interviews, two were conducted over the phone and one was conducted in person at a neutral location. Neutral location indicates that the interviews could not be overheard by other faculty or students in the alternative licensure program nor by administrators, students, or fellow faculty members at their current teaching location. All in-person interviews were recorded using a standard microphone and tape recorder, and the telephone interviews were recorded as well by using a tele-recorder device. Additional questions were added by the interviewer as each session progressed in order to obtain complete, in-depth answers. The first interviews lasted 40 minutes to over an hour depending on the loquaciousness of the interviewee. Scheduling conflicts and technical difficulties led to the combining of the last two interviews into one session, of which all were conducted by telephone. The second set of interviews ranged from 30 to 45 minutes in length. The resulting tapes from all interviews were fully transcribed by either the interviewer or a professional transcriber.

Data Analysis

The three interview series approach was implemented in order to allow the interviewer and the interviewee to examine prior experiences and place them in a context relevant to present and future situations. “The first interview establishes the context of the participants’ experience. The second allows participants to reconstruct the details of their
experiences within the context in which it occurs. The third interview encourages the participants to reflect on the meaning their experiences holds for them (Seidman, 1998).”

The interviews are being presented as case studies. Case studies are advantageous because they allow the researcher to give whole descriptions which are very similar to those that would be experienced in a real-world situation; the information is presented in context. Because of the personal nature of the case study, the researcher must be extra diligent to strictly maintain anonymity and confidentiality. The case study also allows for the demonstration of the “interplay between inquirer and respondents.” Thus, any bias on the researcher’s behalf can be detected (Lincoln, 1985).

Possible relationships (supervisors interviewing subordinates, teachers interviewing students, and interviewing acquaintances/friends) between the interviewer and participant can be easily detected, and these situations should be avoided to control bias or further difficulties outside of the research process (Seidman, 1998). As the researcher the author did not have any relationship with the participants; the author was not their professor or supervisor. The only interaction the author had previously with the participants involved taking some of the same courses. Very little, if any, knowledge of each other existed based on this similarity.

The analysis of the interviews is presented in a structured pattern. Section one, “Examining the Past,” reveals the educational and teaching background of the participants from high school through their current graduate program. Section two, “Comparing the Past with the Present,” presents some raw numbers about each high school, where the participants are currently teaching and how the current high school
compares to prior educational and teaching experiences. Section three, "Philosophies of Teaching versus Reality," explores the participants' vision of effective science or math teaching. The "reality" portion of this title refers to whether or not their visions match with their current school. The final section of the analysis, "Past, Present, and Future Role of Technology," examines the technology background of the participants, how they have tried to use technology in their classroom, the availability of technology or technology support in the school, student's abilities with technology, barriers the participants have had to overcome with technology, and technology the participants would like to see available to them to improve the teaching and learning process.
CHAPTER 4

CASE STUDIES

Amy

Examining the Past

Currently, Amy is a graduate student at a major Midwestern university. She is a part of the EXCEL program, which is the alternative licensure program for math, science, and technology teachers offered by the university. Originally from the same area, Amy attended a high school (W), which is close to the university. W High School is a large suburban high school, and her graduating class consisted of roughly 500 students. Amy took college prep courses in high school (Advanced Placement courses). She was actively involved in a science field study group after school that would take weekend research trips in conjunction with a major university. During her high school years, Amy was also an athlete competing in volleyball and softball.

Amy indicates that learning math and science for her in high school was not difficult:

No, it came really easy. I remember telling people that I had really good teachers in math. I kinda got lucky. You know how sometimes there's a math teacher that people complain about. I had like the best math teacher all four years of high school and just breezed right through math. Had no problem and science - because of that field studies program, I just loved it. I was very motivated to learn. I was reading college articles - college journal articles when I was in high school about my study and that kind of stuff and I was so motivated in high
school because of what I was doing. So science and math were both a breeze.
(Amy, 1st Interview)

Her math teachers followed a general pattern of teaching: students grade their homework, new material is introduced via a lecture, and new homework problems are practiced in class. The science classes were a mixture of lecture style teaching in her basic classes and self-directed inquiry in the advanced classes. Although she rates her high school experience involving math and science as positive, but she reports neutral feelings about her overall high school experience. Amy took classes that she did not enjoy, and like most high school students, she was not happy about the early mornings.

Before coming to the university’s alternative licensure program, Amy was a science field studies assistant for a suburban high school near the one she attended as a teenager. She taught marine and insular biology along with arctic ecology. Amy had the opportunity to take the students to Alaska and the Bahamas where she taught field ecology and species observation. Later, as a teaching assistant for special needs students, Amy helped the students take notes, study for tests, and assisted with behavior management issues. During her first year in the alternative licensure program, Amy taught at, S High School, which is similar to her current location and still within the same school district.

Comparing the Past with the Present

Amy is a ninth grade physical science teacher for LM High School located within a major city in the Midwest. LM High has a student population of 734 with 94% of them minority students (African-American, Hispanic, etc.). Just fewer than 90% of the students
are considered economically disadvantaged. The teacher to student ratio at the school is 1:17, which is just under the state average of 1:18. LM High School reports an attendance rate of 87%, which is below the state average of 95%, and a graduation rate of 51.3%.

Amy describes her current high school as urban with a high percentage of the students on reduced or free lunch subsidies. The culture of her school is “street tough.” She feels that her students have many other things going on in their lives outside of school, and they lack motivation for school. The lack of motivation she attributes to the fact that “They haven’t seen a lot of people have success from graduating from school.” She also points out that the absenteeism rate for the school is high. Amy estimates that roughly 20% of the students are absent everyday from school. Contrary to the public’s image, she feels that her school does not have a violent atmosphere, and the students are respectful towards the teachers.

When I asked to compare her current high school to the high school she attended, Amy points to social-economic standards:

Very different (the two schools). The income levels of the students I was with, when I was in high school are very different. The culture is - I see it as the socio-economic class is just so different. So because of that the things my students now value versus the things my students - that the students surrounding me in high school valued was so different. My friends were all going to college because their parents had money to pay for college. The students I’m working with at [LM] that’s not the end goal of the majority of the students so that’s fairly different. But I think the biggest difference is the money. (Amy, 1st Interview)

Amy suggests that the end goal of her students now is to graduate and get a diploma, so “typically they want to be able to get a job that’s going to make them enough money to get by.”
According to Amy, LM and the high school she last taught at (S) are different
with respect to student attitudes. She feels that the students at LM are more receptive to
the teachers and administrators: “There is tension sometimes but it’s typically a lot more
positive than the last school I was at.” Amy points out that the NA High School, where
she was an assistant field studies instructor, is very different from LM:

…the culture at [NA] was “I deserve this. Give me everything you’ve got
because I was born deserving what I get at school,” and I didn’t enjoy that culture
very much. It was more relaxed and more calm, more orderly, more rule abiding
but less appreciative of their education. Less thoughtful about what they were
learning, less thoughtful of each other than at [LM] and the urban schools that I’m
at I see much more gratitude in students when they see a teacher working hard,
much more - it’s much more difficult to teach the kids because they’ve got other
things going on in their lives versus [NA]. The [NA] kids just absorbed it. They
just were ready to suck it all up but these kids, you’ve got to make sure that they
know what they’re doing with it because otherwise they say ‘I don’t want to. It’s
not for me.’ But at the same time - the empathy that they have and the emotions
and that gratitude that they feel is overwhelming when you start teaching and you
start getting to know your kids. You look at the difference between an affluent
school district like [NA] and then the inner city school districts. These kids really
appreciate what they’re getting. Because maybe they don’t have as much. (Amy,
1st interview)

Philosophies of Teaching versus Reality

Amy feels the goal of science teaching is to develop critical thinkers, when
presented with new information can determine if it is true or false. She wants her students
to have basic understandings of science, a solid foundation; so that when they are in a
real-world situation they will have the ability to interpret their environment. Amy’s
original views coming into education have changed. She initially felt that learning was a
teacher-centered event, but she had to adjust in the middle of her first year because the
students just did not pay attention to her long enough to get through her lessons. Amy
points out that students learn by doing, and her students like to discuss and debate issues like the effect of gravity on a bowling ball versus a feather.

Past, Present, and Future Role of Technology

Computers were not used that often in the high school Amy attended in the early 1990’s. She recalls a teacher that showed computer simulations on atoms in chemistry and another teacher that used PowerPoint slides often for lectures. During her field studies in high school, Amy learned the basic functions of the Microsoft Excel program. The proper use of laboratory measuring equipment (like calipers) and basic graphing calculator functions were also taught in her high school. Most of her background in computer technology came from a graduate course involving hydrogeology, in which she learned how to use search engines and on-line simulations. Amy’s current graduate coursework is very dependent on integrating technology into her projects. She has used a document projector (ELMO), taken digital pictures through a microscope, and created many PowerPoint slide shows.

Even with all of this technology experience in her background, Amy is not able to introduce many of these things to her students. When she is teaching, Amy loves to get her students involved in interactive websites, which is exactly the kind of hands on activity she feels is important. Amy described to me one of her most recent uses of technology in her classroom, which also happened to be her greatest success with technology:

I recently took my students to computer lab to do a rollercoaster simulation. They got to change the parameters of a rollercoaster. They got to change the friction of
a rollercoaster, the height of the rollercoaster, the speed of the rollercoaster and then click go and the rollercoaster would actually move, based on a computer program simulation, according to their parameters and they got to experiment with forces that way. And then I was able to let them go and experiment all they wanted and they loved it… (Amy, 1st interview)

Amy feels that these kinds of computer simulations are important because her school has very little lab equipment available, but they do have many computers. She can use technology to simulate lab situations. She would like to see her school obtain more lab technology, like pH meters, but school financial resources are inadequate. Amy indicates the only reason her school has so many computers is because they are donated by businesses.

Technology use is not stressed by her school’s administrators or other staff members. Certain staff members in her school have kept the school’s two LCD projectors in their room the entire year, so even if the school has the technology it can be hard to find. Amy’s school this year did obtain a set of laptops for classroom use, but because they are new, many problems are occurring and troubleshooting needs to be done. She only has a couple of computers in her classroom, so she must take her class to a computer lab.

Amy estimates that very few of her students have computers at home, because she hears them speaking about going to the library to use the computers. Occasionally, her students will ask her if they can use her classroom computer to print. Amy pays for an on-line grade book program called My Grade Book, which gives students and parents the ability to access grades via the Internet. Because so few of her students have Internet access at home, the program has not worked out for her as much as she had hoped. When
given Internet access, Amy’s students show good skills navigating around websites. The skill level of many of her students with various software programs like Microsoft Word however is low. Amy points out that they do have high technology skills with cell phones and MP3 players.

The biggest barrier to her use of technology in her school is cost. Amy’s school has a very limited amount of technology available, and what they do have can often be difficult to find. These two situations are Amy’s greatest frustration with technology. She feels her professors in her alternative licensure program are not aware of the financial difficulties she must face when it comes to technology integration in the classroom. The faculty needs to discuss more real-life situations in terms of technology, and she feels they should go over how to obtain grants to cover the financial burden. She would love to have her own LCD projector in her room, and she would also love to have enough lab equipment (electronic balances, stopwatches, thermometers, etc.) for her whole class. In the future Amy would like to introduce her students to more programs and simulations, but without the financial backing she would have to pay for it on her own.

Kay

*Examining the Past*

Kay is a graduate student at a major Midwestern university. Like Amy she is also enrolled in the EXCEL alternative licensure program. Kay attended a city high school in Pennsylvania, which bused in students and offered a college preparatory curriculum. She found it difficult to remember many details about her high school because she graduated
from there 25 years ago. Kay was a varsity letter winner in all four years of high school competing in three sports a year. She also sang in the choir. Her school at the time did not have many extracurricular/academic clubs found in today’s high schools. As for her overall high school experience Kay states, “Good experience, loved high school. Sports, school, everything about it.”

Kay found learning math in high school to be “very easy.” She compares her high school math courses to be much like college courses. Concepts were presented and homework was given to be completed at home. “I don’t remember projects or anything like that in math. That we’re more aware of now. So - pretty much I guess that would be called lecture methods. Modeled examples and we were assigned problems to do.” Her science courses were very hands on and lab oriented.

Kay studied electrical engineering during her undergraduate career. She obtained teaching experience by working as a teaching assistant during a graduate program. She taught entry level math courses to college freshmen. Kay would perform a lecture, assign problems, and hold a recitation for the class. She has also worked on and off through the years as a math and science tutor for grades four through sixteen. During her first year in the alternative licensure program, Kay taught at AC High School, which is in the same school district as her current location.

Comparing the Past to the Present

Like Amy, Kay is also a teacher for LM High School, where she is responsible for instructing ninth grade algebra. She describes her LM high students as lower middle
class. When asked to describe the culture of the high school, Kay states that her students have not made the connection with education and how it can advance them in life:

I can’t really say the culture of the students is they don’t value education but they don’t connect it in the same way that I connect education as being successful. So I don’t think it’s more they don’t appreciate it - they just haven’t made that connection that it would advance them in life. I say advance them in life and every time I say that and think about it, I think that’s the way I think so I don’t truly understand their culture because they are okay with coming to school without paper, without pencil, without a book. They’re okay with it. (Kay, 1st interview)

She indicates that her students are very social and are very concerned with their relationships with other students, both the positive and negative relationships. Her students are also deeply into religion, so much so that she has difficulty assigning homework on certain evenings because it conflicts with church events. In contrast she describes her students as having a violent culture. “Violent in the sense that that’s just the way they communicate I think a lot of times. It’s a knee-jerk reaction, kind of compulsive behavior.”

When asked to compare her current high school to the high school she attended, Kay indicates that they are vastly different. Student’s use of inappropriate language is the first thing Kay recalls, but she is not certain if that is just due to changing times.

…I can’t really say lack of respect because I don’t think the students think they’re being disrespectful. It’s the way they talk. There’s constant cursing, constant hollering, name calling. It’s not necessarily from their perspective wrong. I can tell them it’s wrong. They don’t need to treat others that way and I would think they’ve heard that before in their life but it just seems very much normal behavior… (Kay, 1st Interview)

She indicates that some people have told her this behavior is because of the age group she is teaching (freshmen), but she has also experienced this same type of behavior from
older students at the school she taught during the first year of the alternative licensure program.

The school Kay taught at during her first year in the program, AC High School, is also in the same school district as LM. She feels the students at these two schools are very similar. A major difference she notes is that there are definite consequences for misbehavior at her current school that were not present at her last school. Her current school is more orderly. The same orderliness could be found in her classroom when she was a teaching assistant at her college. When comparing her current school to her teaching assistant position Kay points out the following:

...you know I had a lot more time to just teach. Never can I remember an adult ever disrupting a class, meaning 18 [years old] – [a] college student. Never can I remember anyone disrupting class, never even considered someone walking in late as a disruption. You just kept going...I never thought about it. (Kay, 1st Interview)

Kay also feels a shift in the responsibility for education between the students in her current teaching position and the students she taught during her college teaching assistant position:

I look back on it now thinking I never felt like the students in my class - and we had at times 50-60 in a section. I never felt that anyone blamed me for the success or for the failure because you still had people that didn’t do their work and didn’t pass the class. But I never felt that the onus was on me for that success or for that failure. I don’t think it now either but I’m blamed for that. So I never had that sort of thrown in my face... (Kay, 1st interview)

When comparing her other previous teaching experience (one-on-one tutoring sessions) with her current school, Kay indicates that the tutoring sessions were very easy for her because she could find out with very little difficulty what someone was thinking and try to correct any misconceptions right away. Her ideas point to a major benefit of
one-on-one teaching when compared to a normal classroom situation. The students she tutored were also more academically motivated. Kay occasionally has the chance to tutor her current students one-on-one when they voluntarily come in during the lunch break. She points out that these students are more successful with the material because they are not around their peers and they are coming on their own. "They're coming willing to learn and they have a different mind set when they come for help than they do when they're in the classroom."

Philosophies of Teaching versus Reality

Kay finds it difficult to create a vision of effective mathematics teaching now. She used to think she was supposed to "create problem solvers, not just number crunchers, kind of problem solving type thinking." The realities of an urban school have shifted her ideals:

...most of my current experience the last two years in the urban district is more I think effectiveness is basically getting these guys to just have life skills in the classroom. I don't know what effective mathematic teaching would be when you have everybody ready for the class you're trying to teach. I know there's going to be a range always. Always going to be a range of abilities but when these kids are put into algebra I, when they really have flunked every math class up until then and there's a lot of them.... There's a whole lot of kids that need to take algebra I that have not become proficient at the basic operations in mathematics. (Kay, 1st Interview)

Kay feels that if her students would come to her understanding the material that was presented to them in other courses she would be able to make her vision come true. She goes on to state that the students must be intrinsically motivated in order to learn and that many of her students do not have the motivation in academic subjects to do well. Kay
feels some of the behavior problems she sees are connected to the student's academic achievement. She points out:

They just don't have a lot of confidence in it. And so I think they have that behavior problem because they don't want to try. They've been failed so many times they get tired of it so they have this attitude about they're going to fail anyway so why try. It's kind of a self-fulfilling prophecy thing. (Kay 1st Interview)

She tries to make connections for her students to understand that they are not magically going to understand and instantly master all of the material presented in class.

...I don't think that there's a kid on the basketball team that would expect to show up and never practice a free throw and be on the team and be successful. However, you can't convince them it's the same with their course work. They don't connect that to their academics. They don't connect that you've got to practice what you've done in the classroom on your own and I throw out things that you learn about connections building your brain and you've got to practice with things and I tell them it's like a sport. You've got to practice but they'll equate that with the academics so I just think it's unrealistic to expect them to learn to the level that I did or most people who become teachers did. Because they don't do work outside the classroom or very little. Some do; but most don't. I don't think it's going to work. Something has got to change. (Kay, 1st Interview)

Kay has much difficulty understanding her students because of her upbringing (very self-motivated). She also feels that the push in schools to create a classroom of students that are self-motivated and self-directed does not work in an urban school.

Past, Present, and Future Role of Technology

Kay has experience with many different kinds of technology. She did have access to calculators in her high school, but they did not have any computers at the time. The bulk of her experience comes from college and her career. Because she studied electrical
engineering during her undergraduate program, she has worked with very complex technology, which includes magnetic resonance imaging, memory chips for sonar systems, and various programming languages. Her first experiences with a graphing calculator and the PowerPoint program came during her graduate studies in education.

Kay indicates that she has access to computers (laptops as well) and graphing calculators at her school. She has a classroom set of graphing calculators and three computers in her classroom that she does not use for instruction but she does allow her students to use them to type papers for other courses. Kay feels that her students rely too much on technology (mainly calculators) in mathematics. She feels that she was able to progress so far in math because of the number crunching she performed and her ability to learn from her mistakes. She feels when she does use technology in her classroom her students focus too much on the technology and not what they should be learning.

When asked about her greatest successes with technology in her classroom this year, Kay states the following:

Teaching key strokes. I would say the greatest success is actually to where you didn’t have to constantly go over it step-by-step key strokes. Even today when kids are taking a final they were allowed to use their calculators. Pretty good to see that they had absorbed a lot of that and they were using it more to look at graphs in a couple different ways. So just getting them to use calculators as it was intended to begin with I guess would be the greatest success. (Kay, 2nd Interview)

Interestingly though is that Kay’s greatest frustration with technology in her classroom is teaching keystrokes as well. She explains, “The investigations really weren’t about the linear functions. It was more about learning keystrokes.”
Even though she does not understand any of the benefits of technology in the classroom, Kay feels that one of the big barriers to technology use in schools is money. Her school does not have the financial capabilities to purchase the things she would like to use, like white board components and computer projectors. She states that she really is unaware of all of the various educational technologies that exist and does not even know what to ask for if she is given the opportunity.

Dea

Examining the Past

Dea is a graduate student at a major Midwestern university, where she studies math education. She attended a small, private boarding high school just outside of a major Midwest city. She describes her high school experience as academically challenging, and because she played sports it was also "physically stimulating." She feels her high school experience really prepared her for college not just academically but also with respect to being away from home. Being required to live on campus during high school encouraged her to grow and ultimately made college easier for her. Dea was also actively involved in community service during high school. She and her fellow classmates would volunteer at local soup kitchens to serve food, and they would also volunteer to tutor math at the local youth detention center.
Learning math in high school was very easy for her. She describes her teacher’s methods by stating, “Not student centered it was mostly teacher centered...basically presenting the lesson to you, giving you example problems, sending you home with homework.” Much of her free time after classes was spent on homework. Dea indicates that all of her high school experiences prepared her for college. She attended a historically black college in the south where she earned a degree in mathematics. After her undergraduate career she taught at the private boarding school she attended for two years. She also taught at a magnet high school, in which all students are enrolled in college preparatory classes, near her current university. During her first year in the alternative licensure program she, like Amy, taught at S High School.

Comparing the Past with the Present

Now, Dea is a teacher at E High School, which is also a part of the same district as LM and S High Schools. She is responsible for teaching geometry. E High has a student population under 877 with 97% being minority. Roughly 81% of the students are considered economically disadvantaged, and the teacher to student ratio is 1:21, which is above the state average. The attendance rate for the school is at 91%, while the graduation rate is at 63.8%.

Dea describes her current high school as urban, “…it is definitely not suburban. The kids dress like you see the people dress on videos and they talk...like you would talk out on the street as opposed to in the classroom. Just things like that. It is just very urban. The population I would have to say is probably 80% if not more African-American.” She
points out that E high is very different from the high school she attended. She describes her high school by stating, “...I don’t even know if suburban was the name for it...very expensive families, wealthy families, mostly white students, lot of foreign students like that from Korea and Brazil and things like that so very, very diverse school.” Her high school was much smaller as well with a student population of roughly 300 for all four high school grades. Dea indicates that S high school, the school where she taught during her first year in the alternative licensure program, was not as calm as her current school. When asked to describe “calm” she explains:

...not as physically driven. I guess... there’s not, there don’t seem to be as many fights in the school, the hallways are mostly clear. You can basically keep your door open. Occasionally you might hear you know a couple of voices walking through but just the administration seems to have the school pretty well in order. (Dea, 1st Interview)

Philosophies of Teaching versus Reality

Dea describes her vision of effective math teaching by the following:

...I would have to say that...I would like to see my classroom be a classroom where the students could come in and basically get self-started. I don’t have to do a lot of lecturing at the beginning of class maybe...maybe 10 minutes at the most but the class would be mostly hands on inquiry kind of discovering things and seeing...seeing how things progress and seeing how things get to where they be on their own as opposed to being just told. (Dea, 1st Interview)

She thinks the discovery learning process would allow her to see possible student’s misconceptions. She also feels that the beginning of the school year should be devoted not only to reviewing and assessing her student’s abilities, but the students should also learn about note taking procedures, how to obtain information from the teacher or books, and to be self-sufficient learners. She feels that her students should produce more work,
be confident enough about it to complete it at home, and be confident about their work even if they make errors.

When asked if her vision fits with the reality of her current school, Dea laughs at first then she replies:

“No, it does not. There is so much damage that has to be repaired. I feel by the time they get to high school from all their previous years of schooling that it’s almost impossible. You know, it already feels impossible at times to execute my vision to have that class run like I want it run. Because I, I have to work so hard at giving them confidence back. Helping them understand that it’s Ok to give the wrong answer you know they always they just feel like they have to get the right answer and if that’s not the right answer then they don’t care….And breaking that is probably the most difficult thing but that what’s has to be you know that’s where you spend most of your time.” (Dea, 1st Interview)

She points out that her students are very performance oriented meaning they just want her to show them how to complete the problems. They are not concerned with why the problem is being completed with a particular method; they are not mastery oriented.

*Past, Present, and Future Role of Technology*

Dea does not feel she has a very strong background in technology. As she learned mathematics she also learned how to use a graphing calculator, but she does not have experience using the data applications (CBRs and CBLs) that are available with certain calculators. She indicates that computers were just becoming mainstreamed when she was in high school, so they did not have many available. The bulk of her computer experiences came during her undergraduate and graduate programs.

Dea points out that E High School has computers, scientific calculators, and graphing calculators. She has only used the scientific calculators in her classroom, but
she feels that real-life applications using technology are important. Dea splits her days between two classrooms, one with three computers and one with four computers. She does not have her students use them for any of her assignments. She presents her lessons via an overhead projector and the chalkboard. Some teachers in her building use PowerPoint presentations in their classrooms, so she knows that her students have been exposed to other technology. She estimates that roughly 50% of her students have access to a computer at or near home. Dea has been working with another teacher and together they use a grade and attendance book program that her students can access on-line if she provides them with the password. The software for the program was not provided by the school and had to be purchased by the other teacher.

Dea’s greatest success with technology has been teaching her students calculator keystrokes:

Seeing the kids learn how to key things into the scientific calculators on their own without having to get assistance from the teacher. So once we explained and showed them how to do it then - it took a couple days, they picked up on it. Then they got it and when it came back, like when using square root - we’re trying to find the square root with the scientific calculators. You have to punch in the number first…. Whereas on the graphing calculators you can just type in square root, the number and then hit enter and it will calculate. So just the order of the keys. They were really good at picking up on that and then I also liked how they didn’t have to ask the teacher how to do it. If they had a question or they started to struggle, another student could actually show them how to do it. So that was a big success because I’ve had other classes where you have to keep showing them over and over - like the entire year how to make the calculator do what you want it to do. (Dea, 2nd Interview)

Her greatest frustration with technology has more to do with her and not the students or availability of things. She feels very frustrated with trying to integrate technology education into her math classroom. She is just not quite sure how to go about integrating
technology education with her everyday lessons. She would like to do more than just have her students work with calculators.

When asked what she would purchase if cost was not a barrier to her teaching, Dea suggests that she would buy graphing calculators for her classroom, math software, and more computers for her classroom (possibly laptops). She would also like to acquire things to make her teaching more technology based. Dea explains:

I might like purchase a white board or purchase a subscription to black board so that they can get their assignments on-line and they don’t ever have to come and ask me anything. Just go to the computer and find it. You miss class; you know where to find the work. (Dea, 2nd Interview)
CHAPTER 5

CROSS CASE COMPARISON

The data gained from the interviews was interpreted via a cross case comparison, which gave the opportunity to contrast the viewpoints of the participants and to search for a commonality. Several major themes came to light during the analysis: school and student financial situations, teacher’s knowledge of the teaching profession and of educational technology, and characteristics of students. Each theme will be presented along with the supporting data. Table 5.1 gives a break down of the teaching experiences for each participant, and Table 5.2 shows a statistical comparison of the schools at which the participants are currently teaching along with the state averages for the appropriate categories.

<table>
<thead>
<tr>
<th></th>
<th>Amy</th>
<th>Kay</th>
<th>Dea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prior Teaching Experience</td>
<td>Field studies assistant; Special needs teaching assistant</td>
<td>College teaching assistant</td>
<td>Private school teacher; Alternative high school teacher</td>
</tr>
<tr>
<td>1st School During Licensure Program</td>
<td>S High School</td>
<td>AC High School</td>
<td>S High School</td>
</tr>
<tr>
<td>2nd School During Licensure Program</td>
<td>LM High School</td>
<td>LM High School</td>
<td>E High School</td>
</tr>
</tbody>
</table>

Table 5.1. Teaching experiences for the participants
<table>
<thead>
<tr>
<th></th>
<th>LM High School (Amy and Kay)</th>
<th>State Average</th>
<th>E High School (Dea)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Population</td>
<td>734</td>
<td>--</td>
<td>877</td>
</tr>
<tr>
<td>Minority Population</td>
<td>94%</td>
<td>25%</td>
<td>97%</td>
</tr>
<tr>
<td>Economically Disadvantaged</td>
<td>89%</td>
<td>35%</td>
<td>81%</td>
</tr>
<tr>
<td>Student to Teacher Ratio</td>
<td>1:17</td>
<td>1:18</td>
<td>1:21</td>
</tr>
<tr>
<td>Attendance Rate</td>
<td>87%</td>
<td>95%</td>
<td>91%</td>
</tr>
<tr>
<td>Graduation Rate for '03-'04</td>
<td>51.3%</td>
<td>--</td>
<td>63.8%</td>
</tr>
</tbody>
</table>

Table 5.2. Statistics for schools where participants are currently teaching

1 Data from www.greatschools.com
2 Data from the Ohio Department of Education

Financial aspects were a common theme across all of the interviews. When comparing her current high school to the one she attended, Amy indicates that funding for the two schools is very different. Her high school was financially better off than her current school, and the students that attended the school were also financially ahead of her current students. Amy’s current school has a percentage of economically disadvantaged students 54 points higher than the state average. Due to the financial situation of the school, Amy also indicates there is an overall lack of technology available. As a science teacher she would love access to more advanced equipment (pH meter, electronic balance, etc.), but these things are not available to her. Dea points out that she attended a private boarding school, and many of the students came from very rich families from all over the world, which is very different from her current school, where
81% of the students are considered economically disadvantaged. Kay also points to finances when describing her current school; she feels that the school contains many students from low income families.

The next theme deals with pedagogy and the participant’s knowledge of educational technology. It is important to remember that the participants are not experienced teachers and some of their issues may be a reflection of that. Amy states that she originally felt her students should learn through a teacher centered method, but she had to change her approach to better meet her student’s needs. Dea thought that her students should learn through inquiry and discovery, but they lack the confidence to learn in this manner. She feels that this lack of confidence builds up over the years and is almost impossible to repair by the time students reach her class. Kay indicates that students come to her without understanding material that should have been covered in earlier courses. When she covers new material she assumes her students know certain things, but often they do not and the students fall behind.

In terms of educational technology use, Kay and Dea both lack the knowledge necessary to implement these things in their lessons. While Kay has a vast knowledge of technology found in industry due to her background as an electrical engineer, she does not have a strong background in the technology used in education. The lack of educational technology background could explain her difficulties in understanding the potential role of technology in a classroom. Dea, on the other-hand, admits to her lack of knowledge about technology and labels that lack of knowledge as her greatest frustration.
When examining the last theme, characteristics of students, it is important to remember that the teachers in this study were also once students. The participants have the ability to compare themselves with other people they attended school with and the current students they are teaching. Amy, Kay, and Dea took advanced/college preparatory coursework during high school. Of the subjects they are currently teaching, all of the classes are a part of the normal course-load needed for graduation (i.e. not an honors course or an advanced placement course). Initially it is easy to see that any comparison the participants make between themselves and their students is akin to comparing honors students to the students in regular class sections. With this in mind, Amy points out that the students at her high school all had a goal of attending college, which is not a goal of her current students. She also addresses the absenteeism rate by estimating that roughly 20% of the students are not present for school; the school reports a rate of 13% (see Table 5.1). Dea feels that her students are not as self-motivated as the students from her own high school. Kay indicates that her current students lack responsibility for their own education, which is very contrasting from her during high school.

Because Amy and Kay are currently teaching at the same high school, it is important to closely examine their responses in terms of student attitudes towards education. Kay indicates that her students do not appreciate education and are more concerned with relationships they have with other people. Amy has many points that parallel Kay’s thoughts; however, Amy attempts to look at the situation slightly deeper by stating that her students have not seen many success stories from people graduating high school. People cannot value something that they think will lead them nowhere.
Student misbehavior can be seen as a characteristic of students and also a characteristic of the school. Amy and Kay both feel that LM has definite consequences for student misbehavior, which leads to a more orderly environment. Amy and Dea indicate that S High School, the school they both taught at last year, did not have clear consequences for behavior, therefore the school was not as calm as LM. In terms of violence by their students, Amy and Kay have contrasting views of the level of violence found at LM. Amy feels that the school does not have a violent environment, while Kay feels that the students use violence as a way to communicate. The differences found here could be due to several factors. The location of their classrooms in terms of student traffic could influence their views. More fights will occur in higher traffic areas. Amy could have experienced a large amount of violence at her last high school (the high school that lacked consequences for student misbehavior) and LM could seem to have a lower level of violence comparatively. The opposite scenario could be the case for Kay, who could have experienced very low levels of violence at her last high school and now any violence viewed at LM would be seen as high.

The participants all feel that the financial situation of their school and of their students is a key factor. The poor financial status is also seen when examining the lack of access to technology. Because they are new teachers, Amy, Kay, and Dea express a need to modify their initial views of how to teach. Amy has changed her teaching methods; Dea has not found a way to bring confidence back to her students (something she feels is almost impossible); and Kay is reluctant to alter her teaching to review material students should already know. Amy points to finances for her lack of technology use, but Kay and
Dea both lack the knowledge to implement the technology in their lessons. When looking at comparisons the participants make between themselves and their current students, it is important to remember that all of the participants were above average high school students. The characteristics that they attribute to their students must be viewed with this in mind.
CHAPTER 6

RESULTS

The purpose of the study was to answer the following questions:

1. How do new teachers involved in alternative licensure programs compare their past school experiences with the urban school where they teach?

2. How do new teachers involved in an alternative licensure program view the current state of the urban school where they teach?

3. How does technology fit into their past, present, and future school experiences?

Based on the information gathered from the cross case comparison, answers to these questions can now be given; however, when examining the current state of their school, Amy, Kay, and Dea look to their past experiences to express their viewpoint. The answers to the first two questions are intertwined. Because of this issue, the first two questions will be answered together.

The participants all had relatively positive high school experiences and now when asked to compare their current school to their own high school, they focus on negative issues. None of the participants mentioned any similarities between their own high school and their current school. The differences were all negatives aspects: financially disadvantaged (including the school), low achieving, frequently absent students, who also
showed little motivation. Two of the three participants mentioned violence; one attempted to refute its perceived high level and the other discussed violence in terms of the culture of the students. The high schools the participants attended seem to be on opposite ends of the spectrum compared to their current school. The current school seems to be a completely new situation for them. Because they are new teachers, the participants, who have been placed in an environment where many seasoned teachers would have difficulty thriving in, are focusing on many negative issues. The perceived negative focus Amy, Kay, and Dea seem to maintain does not bode well for immediate teaching futures.

The financial status of their current school also affects their thoughts on the use of technology in the classroom. Amy, Kay, and Dea all eventually discuss money as a barrier for not using technology more in their classroom. While none of the three participants seem to be extremely technologically advanced compared to the others, Amy does seem to understand and has the ability to implement technology more readily into her lessons. Her capabilities could come from the fact that she is a science teacher, which requires her to have knowledge of particular pieces of technology. Kay comes from a very technical profession (electrical engineering), but because she was able to complete her high school education without the aid of technology, she does not view it as important for her students. She feels it is a crutch not an aid. Dea’s lack of experience with technology during her own education has found its way into her classroom. Because she feels she does not have a background in technology, Dea has not and probably will not use anything in her lessons beyond a calculator.
The participants all view their current school by focusing on the negative issues. The negative issues deal with both the school itself and the students. The viewpoints of the participants seem to indicate that their own high school was nothing like their current school. When discussing technology, for at least two of the three participants, the lack of educational technology in their background will be a challenge for them when it comes to introducing different things to their students in the future. They will require future professional development to increase their use of technology.
CHAPTER 7

DISCUSSION

Amy, Kay, and Dea have negative views of their current school. Most of the comparisons and observations made focused strictly on negative aspects about the school and the students. For at least two of the three participants, a lack of an educational technology background has greatly influenced their lack of use of technology in their classroom. All of the participants pointed to financial issues to explain at least some of the lack of technology use in their classroom. They cannot use something they do not have access to.

The two main limitations of the study are sample size and the use of case studies to complete the descriptive research. Only three teachers involved in the alternative licensure program were able to participate because they were the only people who would graduate from the program before any data from the study would be viewed by others with power over them (i.e. program professors, supervisors, etc.). While case studies provide for a more in depth look at issues affecting the participants, it is not possible to take any information obtained here and generalize to a larger population.

A larger study needs to be completed to examine the views of alternative licensure teachers. Because of their varying backgrounds, these teachers can bring a
different set of experiences that will shape how they handle their current school
and the students. Many new teachers coming out of alternative licensure programs are
finding jobs in poor urban districts. These new teachers are being placed in some of the
most difficult teaching positions available. Should this be the norm? If these poor urban
schools are so difficult to maneuver, instead of placing new teachers here we should be
placing the best, most seasoned teachers in these schools. The realities of the situation
(i.e. financial aspects) will obviously not allow this to happen, but maybe some veteran
teachers would like to be a part of some kind of guest teacher program. Further research
should look into the issues of placing new teachers into difficult teaching situations, and
how these new teachers are able to deal with (or not) their position.

The implications for this study affect alternative teacher licensure programs, the
more traditional licensure paths, and urban schools. The licensure programs need to instill
the importance of technology to their licensure candidates. While prior exposure to
technology in an educational setting is important, the licensure programs need to further
expose the new teachers to technology, so that when they leave the program they not only
understand the value of technology but also have the ability to implement its use in their
classroom. Because of the shortage of teachers felt by urban schools, they have to hire
beginning teachers. The urban schools need to make sure that these new teachers are
receiving the proper mentoring and professional development needed to flourish as a
teacher. If necessary, the urban schools should look to institutions of higher education to
help provide structured mentoring and professional development (maybe a beginning
teacher program offered through a local university).
APPENDIX A

INTERVIEW QUESTIONS
Interview I

1. Describe your educational background?
   a. Was learning mathematics/science in high school a challenge for you?
   b. Describe your own high school experience.
   c. What teaching methods did your science/mathematics teachers use?
   d. What is the biggest contrast between the high school you attended and the high
      school where you teach?
   e. Describe your previous teaching experience.
   f. Describe the culture of the school where you teach.
   g. How does that compare to your high school?
   h. How does the culture of your current school compare to the last school you
      taught at?
   i. How does the culture of your current school compare to your previous teaching
      experience?

2. What is your vision of effective science or mathematics teaching?
   a. What is your vision of how students learn science best?
   b. Does your vision of student learning match with the reality of an urban school?
   c. How does educational technology fit into your vision of effective science
      teaching and student learning?
   d. Does your vision of educational technology fit with the reality of an urban
      school?
3. What is your background in technology?
   a. Did you use educational technology during your K-12 education?
   b. How did you use technology during your undergraduate or graduate work prior to the MSAT program?

4. How have you been required to use technology in your education courses thus far at OSU?
   a. What classes at OSU promoted your use of educational technology in the classroom?
   b. Describe any challenges you face using technology in your coursework. How could OSU faculty have been more helpful or supportive in helping you use technology?

   Interview II

1. In your new school, what is your sense of the use of technology in your building?
   a. Was the use of technology stressed in your beginning of the year faculty meeting and/or department meetings?
   b. Describe the technology that you are currently aware of at your school.

2. Have you had the opportunity to use technology in your classroom this year? If so, please describe how you used it.

3. What are your goals for technology use for the remainder of this school year?

4. Describe what you believe to be the skill level of your students in using technology.
5. How many computers do you have in your classroom? How often do you use them? How often do students use them?

6. How do you use the computer to record and calculate grades? Describe.

7. How do your students use the Internet for assignments?

8. Are your students required to word process their assignments? If so, how?

9. How do you think your students benefit from using technology?

10. Do you feel technology is beneficial for some students and not for others? Why or why not?

11. What is your best estimate for the percentage of your students who have computers in their homes?

12. If cost was not an object, what type of technology would you purchase to enhance your teaching.

13. What would you say is currently the biggest barrier to incorporating technology use into your teaching?
LIST OF REFERENCES


