**The Impact of Formal Technology Training in the Field of Education on the Use of Technology in Instruction by Pennsylvania Teachers**

By

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A Thesis Submitted in Partial Fulfillment of the Requirements

for the Masters of Education in Technology: Technology Specialist

Approved by:

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**ABSTRACT**

With the increase in the use of technology in all aspects of society, it comes as no surprise that the world of education has felt the impact of technology. As the trend of computer and technology acquisition in schools continues to rise, there is an ever-growing concern over the effectiveness of teaching and learning that takes place through the integration of instructional technology. Experts agree that technology professional development is a valid route to success in integrating technology into the classroom. The purpose of this study is to determine if there is a connection that exists between the amount of professional development in technology that teachers receive and the amount of overall use of instructional technology within their classrooms. 20 conveniently selected teachers from a conveniently selected school district in western Pennsylvania will be asked to complete a quantitative Likert-type survey and a qualitative questionnaire related to technology professional development and technology integration in the classroom. The study will hypothetically show that there is a positive correlation between training and use when it comes to technology in the classroom. The results may be hindered by the fact that the subject group is limited in size and location. Additional research is recommended to broaden the overall scope of the study.

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**I.**

**INTRODUCTION**

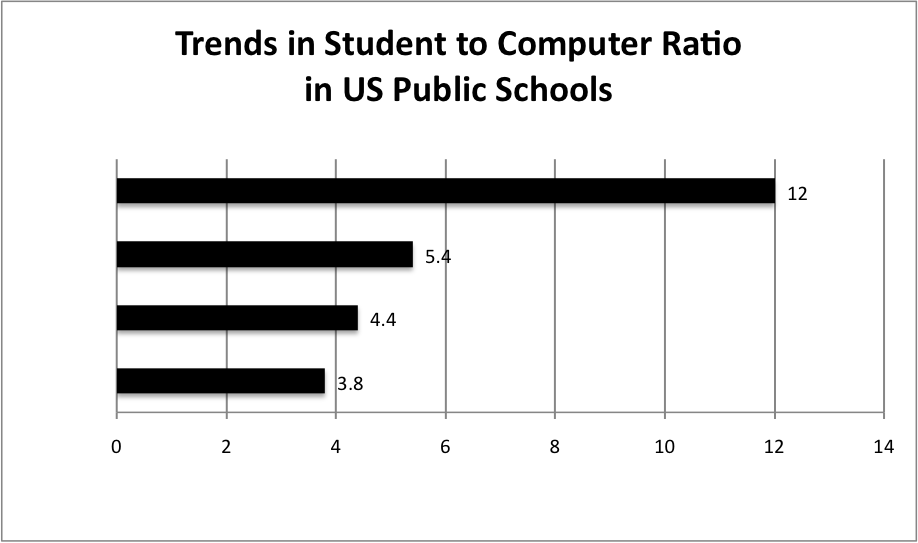
**Background and Purpose of Study**

In today’s modern society, technology is such a major part of life. Personal computers, laptops, and similar electronic devices are being integrated into every aspect of social interaction. Advancements in wireless Internet and mobile technologies have made it easier for people to be constantly connected to an endless amount of information wherever they may be.

This widespread acceptance and adoption of technology within society has adapted itself into schools over the past two decades. Technology, especially the internet, has made it possible for learning to take place just about anywhere, and this learning can be about any topic imaginable. Because of this, there are seemingly endless possibilities that exist when dealing with technology in the classroom, and leaders within the world of education view technology as a way to enhance both teaching and learning experiences. Within the United States, schools, districts, and the federal government have made large investments in instructional technology (IT) since the early 1990s, when the modern movement of technology growth really took off (Miranda & Russell, 2011). Computers have been adopted as valuable learning machines, and the number of computers used in schools has grown in recent years. Notably, computers have been largely adopted within schools for their ability to access the Internet, and as of today, all public schools within the United States are connected to the Internet with 97% of these schools being connected on modern, high-speed connections (Wells & Lewis, 2006).

The trend of technology investment within schools is a continuing effort and can be easily seen through data concerning the ratio of the number of public school students to every computer within US schools. Since 1998, when the ratio of students to every computer was 12:1, the availability of computers within schools has steadily increased, and in 2005, the ratio changed to 3.8:1 (Kay & Knaack, 2005; Wells & Lewis, 2006; Miranda & Russell, 2011) (See Figure 1). As this trend continues, it is relevant to point out that a large number of schools and districts have begun “one-to-one” laptop initiatives where all students within these districts will have access to a laptop computer of their own to use while in school (Miranda & Russell, 2011).

*Figure 1:* Trends in Student to Computer Ratio in US Public Schools



**Description of Terms**

Number of Students Per Computer

Year

1998

2001

2003

2005

***Computer self-efficacy (CSE)*** – the belief in one’s own ability to execute a function through the use of a computer or similar device (Holden & Rada 2011; Venkatesh & Davis 1996).

***Instructional technology (IT)*** – “digital or computer technologies used for teaching and learning in the classroom.” These technologies may include, but are not limited to computers, CDs, DVDs, projectors, and the Internet (Miranda & Russell, 2011).

***International Society for Technology in Education (ISTE)*** – an association for educators and administrators focused on improving the learning and teaching experience through the effective use of instructional technology (ISTE, 2011).

***National Educational Technology Standards for Teachers (NETS•T)*** – a set of national technology standards published by the ISTE to help guide educators to effective technology integration within the classroom (ISTE, 2008) and constitute the basis of educational technology standards in a number of countries (Çoklar & Odabşi, 2010).

***Teacher-directed students’ use of technology (TDS)*** – the extent to which teachers engage various instructional technologies as an appropriate method for students to use throughout the completion of assigned work (Miranda & Russell, 2011).

***Technological Pedagogical Content Knowledge (TPACK)*** – introduced “as a way of thinking about the knowledge teachers need to understand to integrate technology effectively in their classrooms…TPACK comprises knowledge of content, pedagogy, and technology, as well as understanding the complex interaction between these knowledge components.” The TPACK framework helps to illustrate the interactions among content, pedagogical, and technological knowledge (Mishra & Koehler, 2008).

***Technology integration*** – the incorporation of multiple forms of instructional technology into the classroom as tools for improving a teacher’s instructional efficiency and promoting student learning and achievement (Guzman & Nussbaum, 2009).

***Technology self-efficacy (TSE)*** – a user’s self-efficacy, or confidence level toward the integration and effective use of a particular technology (Holden & Rada, 2011).

**Statement of the Problem**

The technology investment trends within schools and the advancements in informational technology, mainly the internet and wireless/mobile computing devices, over the past two decades has raised a “need” for schools to respond. The response has been delivered through the investment in cutting-edge IT that teachers and students can rely on as an instructional tool that can be infused within the classroom (Overbay, Mollette, & Vasu, 2011). However, this increase in technology availability within the classroom does not automatically lead to appropriate integration. In most cases, critics have deemed classroom technology as being an “add on” to instruction that teachers are being forcefully encouraged to use (Wright, 2010). The “wasting” of these technology investments can be prevented through appropriate teacher professional development in the areas of IT development and appropriate teacher-directed students’ use of technology (TDS). Simply developing a comfort and understanding of technology as a classroom tool within teachers does not guarantee effective teaching facilitated through technology (Harris & Hoffer, 2009). The need for appropriate professional development that optimizes the effectiveness of technology integration grows as the increase in the acquisition of technology and computers in schools continues.

**Rationale and Need for Future Research**

The purpose of this study is to determine if technology training through professional development directly impacts the integration and overall effectiveness of technology in the classroom in regards to student learning and instructional efficiency. Using Mishra and Koehler’s technological pedagogical content knowledge (TPACK) model and the International Society for Technology in Education’s (ISTE) National Educational Technology Standards for Teachers (NETS•T) as the basis of this research, the focus of this study will be on secondary-level teachers’ technology integration in relation to their formal training and professional development in the field of IT (Mishra & Koehler, 2006; ISTE, 2008; ISTE, 2011). Similar studies have been conducted focusing on high-quality professional development (Martin et al., 2010), technology integration in pre-service teacher training programs (Choy, Wong, & Gao, 2009), teacher technology mentoring programs (Kopcha, 2008), etc. All of these past studies agree that appropriate professional development and training are key to successful technology integration into the learning environment, but none seem to explore the nature in which technology training impacts overall use of IT.

**Research Questions and Hypothesis**

The research question that is instrumental to the completion of this study is: Is there a statistically significant correlation in the survey scores measuring the degree of technology training and the degree of technology implementation for 20 conveniently sampled teachers in one conveniently sampled school district in western Pennsylvania?

The hypothesis that is predicted for this research is that there is a statistically significant correlation in the survey scores measuring the degree of technology training and the degree of technology implementation for 20 conveniently sampled teachers in one conveniently sampled school district in western Pennsylvania.

**II.**

**REVIEW OF LITERATURE**

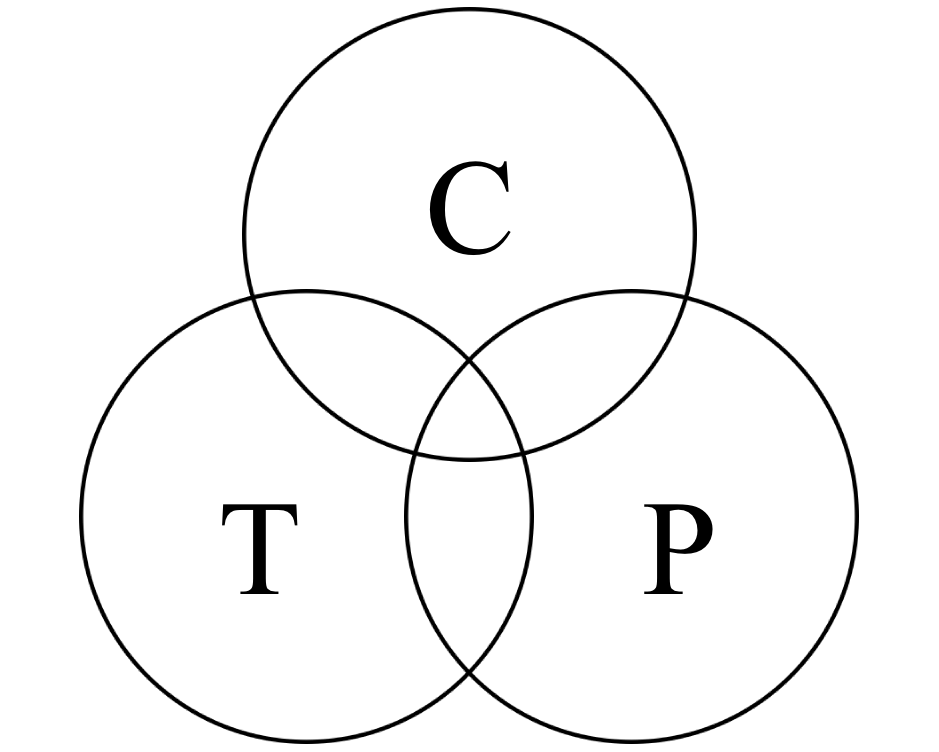
**Theoretical Foundation**

There is a large amount of available literature dealing with effective teaching using technology, and most sources lead to the technological pedagogical content knowledge (TPACK) model (See Figure 2). The TPACK model reflects the three core components that lie at the heart of good teaching with technology: content, pedagogy, and technology. More importantly, TPACK highlights the interactions that exist between and among these three components as they form the core of effective technology integrated teaching (Mishra & Kowhler, 2008). Because of this, the TPACK model is seen as the “total package” when it comes to understanding how technology, pedagogy, content, and context knowledge fit into the big picture of planning for IT integration within schools (Thompson & Mishra, 2007-2008).

Mishra & Koehler’s TPACK model is essentially an extension of Shulman’s theory of pedagogical content knowledge, which identified that specialized knowledge is required to teach differently within various content areas and revolutionized the education world’s understanding of teacher knowledge and its development (Shulman, 1986; Shulman, 1987; Harris & Hofer, 2011).

Expanding upon this theoretical foundation, the instructional task of planning is by far one of the most essential aspects of successful technology integration. Because planning is generally content-focused and activity-based (John 2006; Yinger, 1979), the TPACK model and its integration of the core components of effective teacher directed student use of technology (TDS) for learning must be referenced during instructional planning (Harris & Hofer, 2011). To effectively address the components of the TPACK model through planning, teachers should refer to the International Society for Technology in Education (ISTE) and the ISTE National Educational Technology Standards for Teachers (NETS•T) as a general foundation for instructional objectives (ISTE, 2008; ISTE, 2011).

*Figure 2:* The TPACK Model (Adapted from Koehler & Mishra, 2008)



TPACK

PC

TC

TP

Contexts

**C**: Content Knowledge; **P**: Pedagogical Knowledge; **T**: Technological Knowledge;

**PC**: Pedagogical Content Knowledge; **TP**: Technological Pedagogical Knowledge;

**TC**: Technological Content Knowledge;

**TPACK**: Technological Pedagogical Content Knowledge

**Research Foundation**

Research shows that the value of integrating technology within the classroom has been in the promotion of student skill development in the areas of critical thinking, collaboration, and problem solving (Jonassen, Peck, & Wilson, 1999). To achieve this level of technology integration, educators must be properly trained to use and utilize the appropriate technological tools in their classrooms. As part of effective educational reform initiatives, teacher preparation and professional development has become a major focus. These initiatives promote professional development in the field of technology to shape educators that are both capable and comfortable with applying technologies within the classroom to meet the learning needs of all of their students (U.S. Department of Education, 2008). Mainly, there has been an importance placed on the development of teacher technology self-efficacy (TSE) and computer self-efficacy (CSE) to improve the overall acceptance of the use of technology within the classroom environment (Venkatesh & Davis, 1996; Holden & Rada, 2011).

There has been extensive research focusing on IT training in education. These studies explore teacher professional development in multiple facets. These variations of professional development include pre-service/student teaching/teacher education programs, collaborative technology mentoring efforts in schools, and in-service technology training initiatives.

It should be noted that, currently, more and more teacher training programs are moving toward full inclusion of IT training as a major focal point of study. In these cases, student teachers and other pre-service teachers are expected to learn and understand the potential value of advanced technologies in the classroom. These programs are also providing pre-professional teachers with the opportunity to explore and apply these technologies within their educational programs, building up a knowledge and comfort with IT before actual application in the classroom (Kay & Knaack, 2005).

For already certified professionals, promoting technology integration through mentoring programs is becoming a well-accepted form of professional development in school districts. Teacher-driven mentoring programs can help dissolve any resistance that exists with the incorporation of IT in the classroom through constant and immediate support of colleagues. These areas of resistance often include time constraints related to learning new technologies and how to integrate them into the classroom, knowing how to overcome any technical problems that may occur while using the technology, and/or understanding how to effectively apply IT into the classroom setting (Franklin et al., 2001).

Teacher in-service professional development is widely accepted as a valid form of training in the field of education. In terms of IT and its integration into the classroom, in-service technology training initiatives have generally been successful in recognizing that the purpose of technology integration is to improve teaching and learning in the classroom (Earle, 2002; Ertmer et al., 2003). Generally, schools can initiate practical and effective technology workshops that utilize the available technologies by utilizing teachers that are advanced users of classroom technology, saving the expense of hiring technology consultants. Moreover, teams of teachers that are advanced users of IT can be formed and made available to provide continuous technology support within schools (Overbay, Mollette, & Vasu, 2011).

Even with the amount of variation seen in IT professional development initiatives, one fact that most experts can agree on is that high-quality professional development is critical in the integration of technology as a supporting agent to effective classroom instruction (Martin et al., 2010). These are just a few forms of professional development that educational institutions are initiating. All of them have differences, but they all seem to be in sync with the idea that technology integration in the classroom is very valuable in the areas of teaching and learning.

**Research Problem Explored**

Understanding the complex knowledge that is needed to succeed in curriculum-based technology integration is a fairly recent development in the world of education. This is why a lot of technology initiatives have had only minor success to date (Harris, Mishra, & Koehler, 2009). When dealing with technology initiatives, it should be made clear that the initiatives themselves are not solely about the technology; technology initiatives are about the people who plan with, teach with, and learn with technology in the modern classroom (Overbay, Mollette, & Vasu, 2011). Because of this, the individuals involved directly with IT integration become heavily important in the overall effectiveness of these technology programs, and the TSE and CSE of these individuals play huge roles in the in their success. Technology in the classroom is useless unless used, and teachers’ TSE and CSE are directly related to overall usage (Holden & Rada).

As referenced numerous times in this study, extensive technology professional development programs are being implemented within schools. These programs are being carried out in hopes that proper training will help break down any barriers that are causing any sort of disconnect that may be preventing the successful integration of classroom IT. This study will take a look at the impact that professional development programs have on teachers’ TSE and CSE, and will search for evidence that technology usage within the classroom is increased based upon the training of teachers that are confident and capable of delivering effective technology integrated instruction.

**Research Question and Hypothesis**

Is there a statistically significant correlation in the survey scores measuring the degree of technology training and the degree of technology implementation for 20 conveniently sampled teachers in one conveniently sampled school district in western Pennsylvania?

There is a statistically significant correlation in the survey scores measuring the degree of technology training and the degree of technology implementation for 20 conveniently sampled teachers in one conveniently sampled school district in western Pennsylvania.

**III.**

**METHODS**

**Subjects**

The subjects involved in this study consisted of 20 conveniently selected teachers from a conveniently selected junior/senior high school in western Pennsylvania. These teachers were selected at random and based upon convenience of contact and willingness to participate in the study.

***Institutional Review Board***

The implementation of this project has been dependent on the approval of the application for this research study, which will be sent to and reviewed by the Clarion University Institutional Review Board (see Appendix A for form).

**Instrumentation**

The instruments that were implemented in this research study included a Likert-type scale survey and a questionnaire dealing with IT integration. The survey has been used to quantitatively compare teachers’ use of technology to their level of formal technology training. The questionnaire was implemented to provide teacher feedback to the survey data through personal responses to questions pertaining to technology integration in the classroom.

***Reliability***

The questionnaire and Likert-type survey that have been delivered to the subjects are deeply rooted in the topics of IT professional development and usage of technology as an integrated part of classroom instruction. Consistency between the purpose of the study, the research problem, the research question, and the instrumentation used in collecting data provides good overall reliability to the study. Also, the large number of survey and questionnaire items is estimated to produce internal consistency.

***Validity***

To validate the purpose of the research, the study greatly relies on content validity, especially item validity, when concerning the survey and questionnaire. All items being presented to the subjects are concerning IT. The survey and questionnaire not only address IT, but they also address major aspects of technology integration in the classroom. Therefore, sampling validity within the study is solid.

Although the study has been given to the subjects to be completed within a given timeframe on their own, disallowing teachers with a primary focus on IT have limited bias. Technology teachers and IT leaders have been denied from responding to the survey and questionnaire. Removing their bias toward the topic of the integration of technology in the classroom, the study has benefited from overall validity.

**Materials**

The materials needed in order to complete this study were very basic. First, participants were required to receive and respond to both a quantitative Likert-type survey and the questionnaire forms. These forms have been included in a packet of research materials that also includes the appropriate consent forms, confidentiality forms, and a return envelope. Once the forms were completed, returned, and collected, a computer running the software “Minitab” was used to tabulate and organize the resulting data.

**Procedures**

The following steps were needed to initiate and successfully conduct this research study in an effective and efficient manner:

1. The appropriate Clarion University Institutional Review Board documents pertaining to confidentiality and approval were completed and submitted.
2. Contact was made with a conveniently selected school district in western Pennsylvania in order to receive permission to gather data from the district’s teachers.
3. Through email and phone interaction with the principal of the conveniently selected school district, approval was gained from the school board. This allowed my survey materials to be distributed to teachers.
4. Research packets were constructed and assembled for delivery to the teacher subjects. This packet included an instructional cover letter (See Appendix D – Part III), the appropriate confidentiality form (See Appendix C), Likert-type survey (See Appendix D – Part I), qualitative questionnaire (See Appendix D – Part II), and a pre-addressed, stamped envelope for convenient delivery of completed materials.
5. The research packets were taken to the conveniently selected school and, upon approval of the principal and office administrative staff, were distributed at random to teachers through their school office mailboxes.
6. At this point, the teachers received and, pending cooperation, started to complete the items contained in the research packet. Once finished, the research materials were delivered to the researcher through the mail in preparation of data tabulation.
7. Once the research materials from 20 subjects had been collected via mail, the survey data was collected and totaled.
8. Minitab software was then utilized to tabulate the bivariate correlation of the study. Using the nonparametric Spearman Ranked Order Correlation, the survey data was formally tested for the existence of a significance relationship between the two variables identified in the research question and hypothesis.
9. Using this inferential data, the appropriate tables and figures were constructed and conclusions were made and applied to the initial research question and hypothesis.

**IV.**

**RESULTS**

**Data Reduction and Tabulation**

**Tables and Figures**

The researcher used data collected from the Likert-type surveys that were administered to conveniently selected teachers in a junior/senior high school located in Western Pennsylvania. This data was used to approach and analyze the research hypothesis, which predicted that there is a statistically significant correlation that exists among survey scores that measure the degree of technology training and the degree of technology implementation in the 20 conveniently sampled teachers. The results of the survey may be viewed in Table 1 and Table 2 as well as Figure 3 and Figure 4.

Table 1 displays the items that were included in the Likert-type survey along with the tallied total number of responses by the subjects to each item category on the survey. This table simply acts as an overview of the survey responses.

Table 2 displays the tallied total number of responses to the demographical items found on the Likert-type survey. These tallies represent the genders, ages, and total number of years teaching of the research subjects.

Figure 3 represents the research subject demographics in the form of a boxplot. This data visually displays the sample minimum, sample maximum, upper and lower quartiles, and median ages and number of years teaching of the subjects.

Figure 4 is a scatterplot that visually represents the bivariate correlation between technology training and technology use based upon the research findings of the survey data.

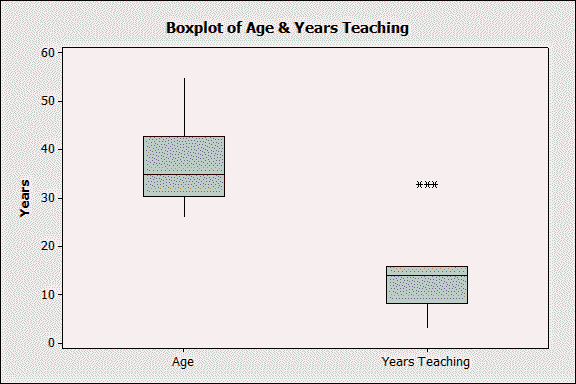
*Table 1:* Survey Results: Instructional Technology Integration and Use

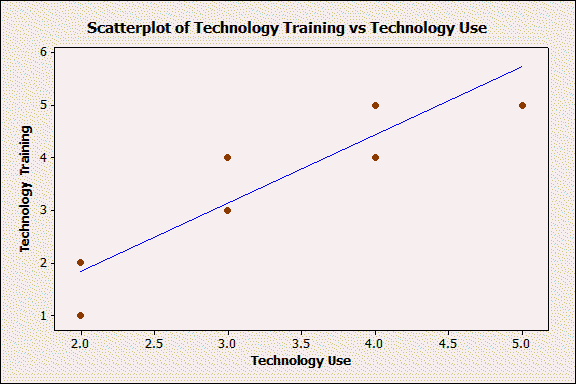
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Survey Results** | | | | | | | | | | | | | | | | |
|  |  | Never | Rare | | | Occasional | | | | Frequent | | | | Constant | | |
| 1 | My use of technology outside of the classroom can be described as: | 0 | 0 | | | 0 | | | | 11 | | | | 9 | | |
|  |  | A | | B | | | | C | | | | D | | | | F |
| 2 | If I had grade my own overall technology self-efficacy, I would give myself a(n): | 5 | | 9 | | | | 6 | | | | 0 | | | | 0 |
|  |  | Have Never Taken | | | Have Taken | | | | Currently Taking | | | | Have Taught | | | |
| 3 | How much experience do you have with web-based (online) courses? | 0 | | | 20 | | | | 0 | | | | 0 | | | |
|  |  | Yes | | | | | | | No | | | | | | | |
| 4 | Have you ever taken or are you currently enrolled in a collegiate-level education course that has an emphasis on instructional technology? | 13 | | | | | | | 7 | | | | | | | |
|  |  | Have personally delivered a workshop | | Have attended  1-2 workshops | | | | Have attended  3-5 workshops | | | | Have attended 5+ workshops | | | | Have never attended a workshop |
| 5 | Regarding teacher in-service training workshops related to technology in the classroom, what is your experience? | 2 | | 2 | | | | 2 | | | | 12 | | | | 2 |
|  |  | Strongly Disagree | | Disagree | | | | Neutral | | | | Agree | | | | Strongly Agree |
| 6 | My district provides adequate technology support from appropriately trained and qualified staff/faculty: | 0 | | 0 | | | | 0 | | | | 16 | | | | 4 |
| 7 | I am confident in my ability to effectively enhance teaching and learning experiences within the classroom through the integration of instructional technologies: | 2 | | 2 | | | | 2 | | | | 7 | | | | 7 |
|  |  | Never  (0%) | Rare  (< 10%) | | | | Occasional  (10-40%) | | | | Frequent  (40-70%) | | | | Daily  (> 70%) | |
| 8 | My use of technology in instruction can best be described as: | 0 | 4 | | | | 4 | | | | 5 | | | | 7 | |
|  |  | None | | Small | | | | Average | | | | Above Average | | | | Extensive |
| 9 | The overall amount of instructional technology training that I have received can best be described as: | 0 | | 4 | | | | 6 | | | | 8 | | | | 2 |

*Table 2:* Subject Demographics

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Subject Demographics** | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | |
|  | | | | | Male | | | | | | Female | | | | |
| **Gender** | | | | | 5 | | | | | | 15 | | | | |
|  | | | | | | | | | | | | | | | |
|  | < 25 | | | 25 - 30 | | | 31 - 35 | | 36 - 40 | | | 41 - 45 | | > 45 | |
| **Age** | 0 | | | 5 | | | 6 | | 2 | | | 4 | | 3 | |
|  | | | | | | | | | | | | | | | |
|  | | < 3 | 3 - 5 | | | 6 - 10 | | 11 - 15 | | 16 - 20 | | | 21 - 25 | | > 25 |
| **Years Teaching** | | 0 | 4 | | | 3 | | 6 | | 4 | | | 0 | | 3 |

*Figure 3:* Boxplot: Subject Demographics (Age and Years Teaching)

*Figure 4:* Scatterplot: Technology Training vs. Technology Use

**Descriptive Statistics**

Through the visual representation of the data in Figure 4, it is apparent that there exists some significance between the two variables: technology training and technology use. Using the Likert-type scale, subjects responded to each of the variables on a scale from 1 to 5 with 5 being the highest, or most. The median score for responses regarding technology training was equal to 4, and the range of these scores was 4. In regard to the responses dealing with technology use, the median score for these responses was 3.5 and the range was 3. The differences between the median scores and the range of each set of variables are 0.5 and 1 respectively.

Reflecting on the study’s hypothesis that there is a significant correlation that exists between the survey scores measuring the degree of technology training and the degree of technology implementation for 20 conveniently sampled teachers in a conveniently sampled school district, the hypothesis would have to be accepted due to the close statistical data produced by each variable.

**Inferential Statistics**

Following the collection of data from the Likert-type surveys, statistical analysis was conducted through the Spearman Ranked Order Correlation, or Spearman’s rho, inferential test. Spearman’s rho is a non-parametric analysis that measures the statistical dependence between two variables. Perfect correlation between bivariate data occurs when Spearman’s rho results in a +1 or -1. The statistical dependence between two variables decreases as statistical calculations produce results close to the center of the spectrum, 0.

Using the survey data, the bivariate correlation was analyzed with the help of the Minitab software. This analysis produced the result that the Spearman’s rho score existing between the two sets of variable was equal to 0.907587. This calculation is only .092413 away from +1 showing that there is a significantly strong correlation between the variables in this study. This analysis using the Spearman Ranked Order Correlation helps to verify the inferential results of the scatterplot found in Figure 4 that there is the existence of a statistically significant correlation between teachers’ overall training in the area of instructional technology and teachers’ overall use of instructional technology in the classroom. This analysis, however, does not provide information regarding one variable causing the other, it merely shows that there is a statistically significant correlation that exists among the variables.

**Research Question and Hypothesis**

The research question that has driven this study is: Is there a statistically significant correlation in the survey scores measuring the degree of technology training and the degree of technology implementation for 20 conveniently sampled teachers in one conveniently sampled school district in western Pennsylvania?

The predicted hypothesis is that there is a statistically significant correlation in the survey scores measuring the degree of technology training and the degree of technology implementation for 20 conveniently sampled teachers in one conveniently sampled school district in western Pennsylvania.

**V.**

**DISCUSSION**

**General Comments**

The projected hypothesis of this study was that there exists a statistically significant correlation between IT training and the integration of instructional technology into the classroom based on data collected from 20 conveniently selected teachers in a conveniently selected junior/senior high school in western Pennsylvania. Through research, this study yielded significant results and evidence that verifies the hypothesized existence of a correlation between the two variables.

The Likert-type survey, which contained items directly related to the qualitative data driving the study, was used to determine that there is a statistically significant correlation between teachers’ overall training in the area of IT and teachers’ use of IT in the classroom. In addition to the survey, a questionnaire was distributed to the subjects to provide additional feedback on the topic of IT training and IT classroom integration.

The idea that training and integration go hand-in-hand resonates throughout the responses to the questionnaire. Many subjects commented on the correlation between training and integration, and they included ideas that “there is always something to learn and improve when it comes to technology,” wished for “more time to learn/explore” new technology, and reflected about “improv[ing] by being knowledgeable of good particle uses [of technology], that introduce, teach, or reinforce the objects for classes.”

One comment that stood out as reflecting the hypothesis and research question driving this study was: “I really need to incorporate more tech. into my classroom. Each year that is my goal, but it requires time to search, learn, and implement. I find that I often just use what I have been using and only adding a little tech. here and there.” This illustrates the impact that training can have on the incorporation of technology into instruction. If teachers are given more time to learn and explore new and cutting edge technologies for their classrooms, they will have the time available to actually implement these technologies into their instruction.

**Limitations of Study**

Several limitations exist within this study. Firstly, the study was only conducted on 20 conveniently selected teachers, which is fairly low. In addition to sample size, the study is limited because the subjects are all teachers in the same building. This could have potentially led to discussion of the survey questions among the subjects, and the accuracy of the data could be skewed. The research study is also limited by the lack of follow up questions by the researcher, and the initial questions on the Likert-type survey and questionnaire could have been poorly worded, producing inadequate data.

**Theoretical Support**

One of the three major components of the “total package” that leads to effective teaching is technology, as illustrated by Mishra & Koehler’s TPACK model in Figure 2. Because of this fact, there have been a number of technology initiatives that have been adopted by schools. With these initiatives, formal training for teachers is needed in order for them to effectively utilize any new technology that is adopted by a school. One fact that most experts agree on is that adequate technology training is critical in the integration of technology in order to deliver effective classroom instruction (Martin et al., 2010).

It is suggested that for instructional technology to effectively act as a component of high-quality classroom instruction, the technology has to actually be utilized by instructors. This study was designed based upon these principals and set out to collect data on the correlation between IT training and IT implementation in the classroom. The data was collected from 20 conveniently selected teachers in a conveniently selected junior/senior high school, and required subjects to respond to questions dealing with their exposure to technology training and their personal application and use of technology in their daily instruction.

**Implications of Study**

Because the research hypothesis has been accepted, it can be said that there does exist a statistically significant correlation between survey scores measuring the degree of technology training and the degree of technology implementation. According to the results of the study, the two variables, technology training and technology use, have been proven to share a correlation. This does not statistically prove that increased training in IT leads to an increase in the use of IT, but this relationship can be inferred.

Taking a look at some of the questionnaire responses of the subjects, it is clear that this belief of increased training leading to increased use is an attitude that is shared among teachers. One subject stated, “We don’t have the time as teachers to try these new technologies as much as I/we would like.” This attitude seems to be common in the subjects studied, but there is a shared positive outlook among them dealing with the importance of technology in education. It has been stated that “technology is a necessary component of education,” “a very vital part in our 21st century world,” and because “the goal of K-12 education is to prepare our students for adult life in a world immersed in technology, technology should be an integral part of their education.”

Based upon the data collected in the study, the feedback provided by the subjects, and the theoretical background of the study, it can be inferred that by increasing the amount of professional development and training in the use and implementation of technology for instruction the overall incorporation and use of instructional technology would see an increase. Through this increase of IT integration in the classroom, students would be presented with more effective instruction through the use of technology.

**VI.**

**SUMMARY AND RECOMMENDATIONS FOR FUTURE RESEARCH**

**Summary**

The data that was collected showed that a statistically significant correlation between technology training and technology use in the classroom existed. Although the existence of a correlation between these two variables has been statistically proven, it has not been statistically proven that an increase in technology training causes to an increase in technology use. However, this can be implied through the discussion of the subjects in the responses to the study questionnaire.

**Recommendations**

Because this research study was based off of data collected from a small group of teachers in one school district, a suggestion for future study is that the data collection be expanded to include a larger number of samples from a larger demographic of teachers. In addition to broadening the scope of the study, it is suggested that the materials be revised to exclude items that have no impact on the study and include a standardized Likert-type scale with a larger range of response options. This would help to increase reliability of the materials and strengthen the overall outcome of the study.

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**Appendix A**

Clarion University Institutional Review Board Application for Research Approval

**Appendix A-Part I**

**CLARION UNIVERSITY INSTITUTIONAL REVIEW BOARD**

**APPLICATION FOR RESEARCH APPROVAL**

Research Project Title: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Principal Investigator: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Department Affiliation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Investigator Address: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Office Phone: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Home Phone: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ E-Mail Address: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Indicate below which category this research project conforms:

**\_\_\_ EXEMPT REVIEW**

* Refer to EXEMPT Review guidelines on page 4
* Submit original proposal **directly** to the Department Representative including the EXEMPT RESEARCH APPROVAL FORM (Appendix A1)

**\_\_\_ EXPEDITED REVIEW**

* + - Refer to Expedited Review guidelines on pages 5-8
    - Submit **original and two copies** directly to the Administrative Office

**\_\_\_ FULL BOARD REVIEW**

* + - Refer to Full Board review guidelines on page 8
    - Submit **original and two copies** directly to the Administrative Office

COMPLETE THIS SECTION ONLY IF PRIMARY INVESTIGATOR IS STUDENT

Faculty Sponsor: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Typed or Printed

A I have reviewed this research and am willing to take full responsibility for it.”

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Faculty Signature Date

ADMINISTRATIVE OFFICE:

108 CARRIER ADMINISTRATION BUILDING

CLARION UNIVERSITY OF PA

CLARION, PA 16214

**Appendix A-Part II**

**CLARION UNIVERSITY INSTITUTIONAL REVIEW BOARD**

**APPLICATION FOR RESEARCH APPROVAL**

Project Title: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Principal Investigator: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Main hypothesis to be tested or brief statement of the problem to be investigated: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Will extra credit or grade be given to students who participate in the project? **Yes No**

2. Will subjects include anyone other than Clarion University students? **Yes No**

3. Will subjects include minors (children under 18), people with special needs, **Yes No**

prisoners, or pregnant? If yes, circle group or groups.

4. Will subjects be video/audio taped? **Yes No**

5. Will subjects be identifiable to anyone other than the researchers through **Yes No**

records, responses, or identifiers linked to the subjects?

6. Does research deal with sensitive aspects of subjects' behavior, such as **Yes No**

illegal conduct, drug use, sexual behavior, or use of alcohol?

If yes, circle from above or otherwise list aspect(s) addressed:

7. Are subjects free to withdraw at any time without penalty? **Yes No**

8. Are there any deceptive elements to the study? **Yes No**

9. Will subjects be exposed to any psychological stress (assault on values, **Yes No**

self-esteem, fatigue) or physical stress (electric shock, cold, etc.)?

**Attach the following:**

1. Draft of the method section (describe in detail):

* How will the study be conducted from start to finish, as far as human subjects are concerned?
* Describe methods, instrumentation, types of data collected, potential benefits vs. risk, etc.

2. Include one copy of the questionnaire, survey, test, etc. to be used in the research

3. Include a sample of the Informed Consent Form

4. Include the Confidentiality Statement Form with your signature and a witness signature

I certify that the above information is an accurate and complete statement of the nature of my research.

Signature \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Appendix A1**

**CLARION UNIVERSITY INSTITUTIONAL REVIEW BOARD**

**EXEMPT RESEARCH APPROVAL FORM**

Research Project Title: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Principal Investigator: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Department Affiliation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Home Address: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Office Phone: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Home Phone: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

We, the undersigned faculty, affirm that this project falls into the category of research that is exempt from full IRB review, as described under section three of Procedures in Clarion University of Pennsylvania=s Policy and Procedures for the Protection of Human Subjects of Research.

Exempt Category:

Department IRB Representative: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Printed or Typed

Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

IRB Chair: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Printed or Typed

Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Appendix B**

**GUIDELINES - INFORMED CONSENT FOR EXPEDITED and FULL BOARD REVIEW CONSENT TO ACT AS A SUBJECT IN A RESEARCH STUDY**

UNIVERSITY AFFILIATION: Clarion University of PA Administrative Office, 108 Carrier

Administration Building, Clarion, PA 16214, 814-393-2337

TITLE: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

PRINCIPAL INVESTIGATOR: Name with address, telephone number, and e-mail address

(if applicable)

CO-INVESTIGATORS: List all with addresses, telephone numbers, and e-mail addresses (if applicable)

DESCRIPTION: I understand that I have been asked to participate in this research project which is a study of .......... [include: a) number of subjects (including gender and age range); b) reason for subjects' involvement; c) number of sessions; d) length of sessions; e) any anticipated follow-ups; f) type of measures, interview, etc.]

RISK AND BENEFITS: Include a description of any reasonably foreseeable risks of discomforts to the subject, as well as any benefits to the subject or others which may reasonable be expected from the research.

COST AND PAYMENTS: All costs which will be assessed to the subject must be stated as well as any payment which will be offered for participation in the study. If there is neither a cost nor a payment, include a statement to that effect.

CONFIDENTIALITY: I understand that any information about me obtained from this research will be kept strictly confidential. Information will be kept in locked files and only (the principal investigator and research team) will have access to it. It has been explained to me that my identity will not be revealed in any description or publication of this research. Therefore, I consent to publication for scientific purposes.

DISCLOSURE: I understand that any information about me obtained from this research may be disclosed. Information will be stored... It has been explained to me that my identity may be revealed in any description or publication of this research. Therefore, I consent to publication for scientific purposes.

**(In the event that children are involved in the study, the following language must be added to the confidentiality section: *"an exception to confidentiality is information on child abuse and neglect that is obtained during research. The information will be reported to the appropriate local or state agency in accordance with Pennsylvania law.")***

RIGHT TO REFUSE OR END PARTICIPATION: I understand that I may refuse to participate in this study or withdraw any time. I also understand that I may be withdrawn from the study any time by the investigator(s).

Signature of Subject: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Signature of Investigator: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ IRB Research Approval # \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Appendix C**

**CONFIDENTIALITY STATEMENT FORM**

As a researcher working on the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_research

Project Title

study at Clarion University, I understand that I must maintain the confidentiality of all information concerning research participants. This information includes, but is not limited to, all identifying information and research data of participants and all information accruing from any direct or indirect contact I may have with said participants. In order to maintain confidentiality I hereby agree to refrain from discussing or disclosing any information regarding research participants, including information described without identifying information, to any individual who is not part of the above research study and in need of the information for the expressed purposes of the research program.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Signature of Researcher Date

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Signature of Witness Date

**Appendix D**

**Research Instruments**

**Appendix D Part I – Instructional Technology Integration and Use Survey**

This survey is designed to investigate the correlations that exist between teachers’ use of technology in the classroom and the amount of formal technology training and professional development that they receive.

Please respond to each of the survey items as honestly as you can, to the best of your ability. Your responses will be kept confidential and will be used for data in my graduate research project being completed in fulfillment of requirements for Clarion University of Pennsylvania’s Master of Education (Technology) program.

The survey will only take a few moments of your time to complete, and all of your responses will remain anonymous. Thank you for your cooperation. Please begin by filling out the following survey and then moving on to complete the questionnaire portion.



Please mark the response that best describes you as an individual.

1. My use of technology (computers, smartphones, e-readers, etc.) outside of the classroom can be described as:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Never  ⬜ | Rare  ⬜ | Occasional  ⬜ | Frequent  ⬜ | All the Time  ⬜ |

2. If I had to grade my own overall technology self-efficacy\*, I would give myself a(n):

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| A  ⬜ | B  ⬜ | C  ⬜ | D  ⬜ | F  ⬜ |

**\*Technology self-efficacy is a user’s belief in their ability to use a particular technology effectively.**

3. How much experience do you have with web-based (online) courses? (mark all that apply)

|  |  |  |  |
| --- | --- | --- | --- |
| Have Never Taken  ⬜ | Have Taken  ⬜ | Currently Taking  ⬜ | Have Taught  ⬜ |

4. Have you ever taken or are you currently enrolled in a collegiate-level education course that has an emphasis on instructional technology?

|  |  |
| --- | --- |
| Yes  ⬜ | No  ⬜ |

5. Regarding teacher in-service training workshops related to technology in the classroom, what is your experience? (mark all that apply)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Have personally delivered workshop  ⬜ | Have attended  1-2 workshops  ⬜ | Have attended  3-5 workshops  ⬜ | Have attended more than 5 workshops  ⬜ | Have never attended a workshop  ⬜ |

6. My district provides adequate technology support from appropriately trained and qualified staff/faculty:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Strongly Disagree  ⬜ | Disagree  ⬜ | Neutral  ⬜ | Agree  ⬜ | Strongly  Agree  ⬜ |

7. I am confident in my ability to effectively enhance teaching and learning experiences within the classroom through the integration of instructional technologies:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Strongly Disagree  ⬜ | Disagree  ⬜ | Neutral  ⬜ | Agree  ⬜ | Strongly  Agree  ⬜ |

8. My use of technology in instruction can best be described as:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Never  0%  of instruction  ⬜ | Rare  <10%  of instruction  ⬜ | Occasional  10-40%  of instruction  ⬜ | Frequent  40-70%  of instruction  ⬜ | Daily  >70%  of instruction  ⬜ |

9. The overall amount of instructional technology training (in-service workshops, conferences, collegiate-level courses, etc.) that I have received can best be described as:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| None  ⬜ | Small  ⬜ | Average  ⬜ | Above Average  ⬜ | Extensive  ⬜ |

Demographics

Gender:

|  |  |
| --- | --- |
| Male  ⬜ | Female  ⬜ |

Age: \_\_\_\_\_\_\_\_\_\_

How many years have you been teaching? \_\_\_\_\_\_\_\_\_\_

Thank you for your cooperation with this portion of my study. Next, please complete the questionnaire portion included within this research packet.

**Appendix D Part II – Questionnaire**

Thank you again for taking the time to participate in my research study. Please be assured that all of your responses will remain anonymous. Your time and honesty is greatly appreciated.



Please respond to each of the following items as completely and honestly as you can. If you need additional space to write, feel free to attach additional pages.

1. Please describe your personal thoughts on technology in education.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. What content area do you teach, and how do you use technology within your content?

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3. What is your planning process for lessons that integrate technology?

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4. Please describe, in detail, the extent of your training and professional development in the field of instructional technology and how it has had an impact on your use of technology in the classroom.

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5. In what ways could you improve in regards to the integration of instructional technology in your classroom?

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**Appendix D Part III – Instructional Cover Letter**

Nathan J. Pearce

N.J.Pearce@eagle.clarion.edu

(814) 602-4210

http://njpearce.weebly.com

Dear Sir or Madam:

My name is Nathan Pearce, and I am a graduate student at Clarion University working toward my M.Ed. with a concentration in technology. As part of the Master’s program, I am required to complete a course involving academic research, and I am cordially asking for your participation.

The title of my research study is “The Impact of Formal Technology Training in the Field Education on the Use of Technology in Instruction by Pennsylvania Teachers,” and it is designed to investigate the existence of a correlation between training and use when it comes to instructional technology in the classroom.

Participation in this study involves the completion of a short survey and a questionnaire. Completion of these two items will take approximately 10-15 minutes or less. All information that you provide will be kept completely confidential, and your identity will not be revealed in any description of publication of this study.

If you choose to be a participant in this research study, please see and complete the enclosed confidentiality form and follow the instructions found at the top of the survey and questionnaire. Upon completion, please return the confidentiality form, survey, and questionnaire by using the included envelope that is pre-addressed and pre-posted.

If you have any questions or concerns regarding participation in this study, you may contact me, Nathan Pearce, either by email (N.J.Pearce@eagle.clarion.edu) or phone (814) 602-4210.

I thank you for your cooperation in this study! Through your participation, I am able to move ever closer the completion of my graduate program and learn the process for conducting professional research. I truly appreciate the time and information that you contribute in this research study. Again, I thank you.

Sincerely,

Nathan Pearce