

# **Recommendations for Integrating Technology in Professional Development**

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# **RECOMMENDATIONS FOR INTEGRATING TECHNOLOGY IN PROFESSIONAL DEVELOPMENT**

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By

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**Abstract**

**Statement of the Problem**

The necessity for educators to be knowledgeable in regards to the technology that is implemented and utilized in their classroom is continually increasing as technology is changing at a faster rate today than previously stated in Moore's Law. Professional development has been a key component in education. The methods and concepts of initial professional development and ongoing professional development have varied over time and between school districts. Given the increased pace of changes in technology and its impact on education school districts are taking a closer look at effective professional development. Rural school districts with greater financial limitations have in increased amount of difficulty in this area.

### **Methods and Procedures**

A series of surveys were created by the Administrative Team in the Potosi School District to evaluate their teaching staffs' knowledge and comfort level in various areas of upcoming Professional Development for the 2013-2014 school year. These surveys and the results would aid in guiding the administrative team in adjusting professional development time to effectively meet staff needs and determining what and how much follow-up training was needed for staff to comfortable in the implementation of the Educator Effectiveness Project and the technological components included for the 2014-2015 school year.

### **Summary of Results**

The results of the pre-assessment, mid-year assessment, and post assessment are shown in the Tables 1 – 6. Each table is followed by a description detailing the results of each particular question, the implications of the research, and possible variables that may impacted the results. Table 7 gives the summary results of the T-test analysis.

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# **Recommendations for Integrating Technology Through Professional Development**

Debra A. Bisbach

## **CHAPTER 1**

### **Introduction**

Professional development is an important component for any person working in a professional field. It is important for the company's own personal growth but it is also important for the growth of the company. It is this growth that will allow them to keep up with changing times. There are many types and strategies of professional development available in today's world. The form the professional development takes can vary greatly from personal development in an employee's area of expertise to entire staff development at the place of business. Educational institutions, like other businesses and companies, have to consider the professional development available and how that development can have a positive impact for their future.

One of several changes happening in society today is in the area of technology. There was a time when cassettes tapes were prevalent allowing music to be more portable. Today we have the iPod which allows us to hold 1,000's of songs on a device that is smaller than a deck of cards and will fit in our pocket. Chalkboards have given way to interactive whiteboards. Students no longer have to take a field trip to the library to find articles in the school's magazines, information in the encyclopedia or wait for materials from another library to arrive. Instead they have the ability to begin researching, view videos from another country, and so much more right at their desks with their Smart phone, laptop, iPad, or other electronic device. These changes are happening as we speak and more changes are coming. Moore's Law states

that the number of transistors placed on a circuit will double every two years. This theory has held true for the almost fifty years and is expected to continue for at least the next decade (Wadhwa, 2012). In order to apply new technology appropriately in the classroom, educators need to be knowledgeable and comfortable with it. This begins with professional development in the area of technology.

Another issue professional organizations, should consider is how well the information gained from the professional development is being integrated into their employee's work environment. In the field of education this would encompass the educator implementing new strategies learned into their classroom. Once those strategies have been successfully implemented the educator must also be able to maintain the new strategies or technology that has been acquired. Effective integration and ability to maintain the information or technology from the professional development is cost effective for the professional organization.

### **Statement of the Problem**

New technological advancements continue to be developed and implemented in the workplace, home, and throughout society. A greater demand is being placed on educational institutions to introduce and educate students, as the future workforce, to these new technologies. In an effort to move forward with these new technologies, districts are incorporating more technology within their schools. Professional development is available and participated in during the introduction of new technology. However the amount of professional development allowed for follow-up training diminishes as time passes and monitoring effective implementation of the technology in the classroom diminishes as well. The preceding is also the problem for the rural southwest Wisconsin district in which the research for this project was conducted. Professional

development in introducing technology varies a great deal according to the experience this researcher had from 1999-2014. Surveys of teachers that are reported in this research indicates that the professional development on how to use new technology is generally adequate according to this researcher in 2013-2014, but is lacking in additional professional development on how to effectively implement the new technology into instruction.

### **Purpose of the Study**

It is necessary for an educator to have knowledge of the technology they are implementing in their classrooms and expect their students to utilize. Professional development (voluntary or mandated) that helps the educator to introduce and incorporate a new piece of technology is available. However the amount of professional development necessary for effective implementation of technology has not been extensively researched. Initial implementation of technology into the classroom needs to be seen as the beginning of an ongoing process. As new technology is being developed, current technology is being updated and adapted to new uses. A district must review various models of successful professional development to determine what training will be effective for implementing and maintaining new technology in a district.

District administrators are accountable for expenditures and have a fiscal responsibility to the district. Administrators need to ensure that professional development for the implementation of technology in their district is cost effective. Determining what is cost effective may vary from district to district. One contributing factor would be how effectively the educator is using technology learned from the professional development.

The research questions that guide this study are: 1. Are there factors that make a model of professional development successful in preparing an educator to use what was taught in the classroom? and 2. What factors of professional development successfully integrate technology allowing effective implementation of technology in the classrooms?

### **Significance of the Study**

The significance of this study is to gain a better understanding of the impact of initial and ongoing Professional Development in Education in the area of technology has on the effective and continual implementation of technology in the educator's classroom. The information gained from this research will be shared with the district in which the research is taking place and other interested districts. This study will allow professional educators to utilize the information gained from this research to help make recommendations to administrative teams that will promote ongoing professional development for the implementation of technology in classrooms. This study will also give support to administration in requesting funding for professional development from governing School Boards.

### **Delimitations of Research**

The resources of the Karmann Library at the University of Wisconsin-Platteville along with the search engines of EBSCOHOST were used as well as Google advanced search for scholarly journals. Research was limited to the field of education and conducted in one school district. The population involved in the research included adults that held a valid Wisconsin teaching license.

## **Definition of Terms**

Professional Development – learning activities of all kinds that prepare educators to teach in the classrooms

Technology – full range of computers and computer-based equipment including devices that can be attached to computers as well as operating systems, software, and infrastructure

Technology Integration – incorporation of technology resources and technology-based practices into daily routines or work, instruction, management, and schools

## **CHAPTER 2**

### **Review of Literature**

The literature review that follows contains 8 subsections relating to professional development, technology, and the combination of the two. The first section discusses professional development and changes that have occurred in professional development throughout the past decades including current practices and problems with professional development today. The second section looks at factors that lead to successful professional development and is followed by models of successful professional development. The next section in the literature review begins to look at technology. Changes occurring in technology today are discussed. This is followed by the impact technology has had and is having on education. The importance of integrating technology into the professional development of educators is examined. The final subsection looks at the factors that make technological professional development successful.

### **Professional Development**

Professional development provides knowledge and skill development to educators to help support change in their own classrooms, the districts they teach in, and in education in general. Quality professional development is an essential component necessary to improve student learning (Choy, Xianglei & Bugarin, 2006). Improving what is being done in the classroom to improve student learning has been and will continue to be a goal of professional development in education. How we go about making changes and what those changes should be has had a variety of thoughts and perspectives over the years.

In the past, a common type of professional development was the workshop. This tended to be a one-day event on a specific topic with little or often no follow-up. In many instances,

district personnel or a principal would choose the workshop for one or more of their teachers to attend. It was common to have little to no discussion with the teacher prior to setting up their attendance at a workshop. The topic of the workshop may or may not even be related to the attending teachers' subject matter (Choy, Xianglei & Bugarin, 2006). Professional development that schools participated in, often were not related to any goals of the district or the district's improvement plan. The workshop still exists in today's professional development. Some still refer to it as a workshop, while others refer to it as a conference or seminar. The basic concept is still the same. In some instances there are follow-up workshops and methods for evaluation. However, it is often still considered to be short-term with little continuity (Parsad, Lewis & Westat, 2001).

Researchers expressed concerns regarding professional development in education. Professional development is often still thought of as part of the teachers' workday. Once professional development was attended, it was believed by the administration that the teacher had all the needed resources available to successfully implement the material learned. Learning and implementing new concepts was considered just another item that educators need to fit into their schedule and no more time was needed. Schedules often posed another problem. Most schools' schedule are not very flexible and don't easily allow for the time needed to prep, plan and actively participate in professional development. (Choy, Xianglei & Bugarin, 2006).

Overused the reference- select a different one

Teachers are asked to think about the students that they serve when selecting and attending professional development, but teachers are rarely asked to think about themselves as learners. Many professional development opportunities in the past have been formatted to present information for the educator to take back with them and implement. For some teachers,

this format works because it happens to be the teacher's learning style. Not all teachers have the same learning style just because they share the same profession. For many, this format simply gave teachers information that they were not able to implement effectively (Pedigo, 2003).

Teachers, who are expected to know, understand and consider their own learning style when selecting what professional development to attend could then, have a greater impact on student learning than if it were not considered.

### **Factors of Successful Professional Development**

As time progressed, some of the practices previous mentioned (i.e., workshop and seminar) may persist in some school districts, while in some districts these practices have evolved, and in other districts, these practices no longer exist. Professional development that is implemented and utilized in a school district will and should vary with the needs and size of the school district as well as the needs of the educators within a district. However, there are several factors such as: teacher input, collaboration, and having the professional development related to the district's goals that should be considered to contribute to successful professional development. Districts should consider professional development as a part of a comprehensive process within the district that is aimed at making positive changes.

As discussed earlier, it was common for district staff or principals to set up professional development for their staff. Although district staff, curriculum specialists, or administrators are still part of planning and setting up professional development, it is now done in collaboration with the teachers that are involved. Topics that will expand a teacher's expertise in subject content, teaching strategies, technology, or other essential elements of teaching are considered in determining what professional development will occur (Choy, Xianglei & Bugarin, 2006).

Continuity between what teachers are learning about and what is happening in their classroom leads to changes with lasting and long-term effects (Parsad, Lewis & Westat, 2001). Some districts are creating Individual Learning Plans for each teacher. These plans include personal goals for improvement for each teacher that are linked to the school's improvement plan. By doing this the district is ensuring that the professional development will meet the educator's needs but also is contributing to identified positive changes in the district (Pedigo, 2003).

Another factor that is attributed to successful professional development is quality instruction. More and more districts are beginning to practice what they preach. What is best practice for students in a classroom is also best practice for educators in a training session. Professional development is not simply handing information to educators and sending them on their way. It is in fact, adult education (Donhost & Hoover, 2007). Differentiated learning for our students is stressed in the classroom and needs to be stressed for our teachers' learning as well. Increasing a teacher's learning can produce higher student results (Pedigo, 2003). To promote success, many professional development opportunities are now incorporating concepts such as collaboration and constructivist strategies. According to the Schools and Staffing Survey (SASS) completed by the National Center for Education Statistics, collaboration with other colleagues leads educators to effectively implement strategies in the classroom that effect student learning (Choy, Xianglei & Bugarin, 2006).

The needs of the teacher or teachers participating, continuous follow-up and evaluating the effectiveness the professional development had on student outcomes should all be a part of the process in selecting the right professional development for the teacher and the district. These concepts are essential in a teacher's instruction and need to be taken into consideration in professional development. Effectively following-up and evaluating the professional

development that a teacher participated in takes time. School districts need to recognize this factor and provide a teacher with the time necessary to complete these tasks which will lead to the professional development having a more effective implementation and impact (Donhost & Hoover, 2007).

### **Models of Professional Development**

Today professional development is available in a variety of forms including the previously mentioned workshop that may be better known today as a seminar or conference. A more traditional form of professional development, it is still widely used by school districts and their educators. Although conferences are often still considered to be short-term with little continuity (Parsad, Lewis & Westat, 2001), they have gone through a variety of changes to update them to meet the needs of today's teacher. One of the changes seen in conferences today is that the educator attending the conference is part of selecting which seminar they would like to attend. The teacher has taken their own needs and the needs of their classroom into account when making these selections. Topics can be more specific allowing attending teachers to expand their area of expertise. Many seminars or conferences also allow educators to gain university credit for attending and then expanding on or implementing what was learned. In the past, this was considered one of the main reasons for teachers' attendance. Now it is considered an added benefit (Choy, Xianglei & Bugarin, 2006).

Collaboration throughout a professional development opportunity and as part of any follow-up exercises is also a contributing factor to successful professional development. Collaboration among professional educators is increasing. This collaboration may include, but is not limited to researching a topic of mutual interest, sharing teaching strategies, curriculum

development, or technology integration. Technology has opened up a new world of collaboration. Teachers who once relied on colleagues in neighboring districts, those met at a conference, or those within their own district, now have the ability to create their own professional learning network of colleagues across the country (N. Walser, 2011). As collaboration among educators is on the rise, so is collaboration among school districts. Districts are looking to learn from each other. Implemented programs within a district that have shown to have success may prompt another district to send an observational team to begin a collaborative effort to implement a similar program as a form of professional development (Choy, Xianglei & Bugarin, 2006).

Mentoring programs to help new teachers transition to their new job, adjust to their responsibilities and become familiar with the district's programs, policies and available resources are being implemented across the country (Choy, Xianglei & Bugarin, 2006). Some states have required school districts to develop and implement such a program. The State of Wisconsin has mandated this type of program, Wisconsin Quality Educator Initiative or PI-34. It requires all school districts to provide a support system for initial educators. The program needs to include orientation, support seminars and a mentor to be appointed to work with the initial educator ("Wisconsin induction guidelines," 2009).

The small rural southwestern Wisconsin school, which the research for this project was conducted, implemented such a program because of PI-34. As a member of the Potosi School District teaching staff prior to PI-34 it was observed that teaching staff were hired, given keys to classrooms and a list of classes to teach. Even with no mentoring, new teachers often reported that they felt successful because amazing and innovative veteran teachers on staff were willing to help all new teachers. Since 2004, all new staff in the Potosi School District has a mentor

assigned to them, even if they are not initial educators. As observed by the researcher, the program has grown and adapted to state requirements as needed. Currently the mentors and administration meet with initial educators and new teachers prior to the beginning of the school year to go through policies and school procedures, help familiarize them with the building and where resources are located and to answer questions. Mentors have a checklist of items that they go through with the initial educators throughout the year and attend seminars with them as well. As a part of the Mentoring Program, mentors attend Professional Development workshops with their mentees, guide them in instructional methods, and aid them in effectively implementing available technology into their instruction.

## **Technology**

Professional development has gone through many changes over time as researchers and educators are constantly working to make improvements that will have a positive effect on student learning. Many areas of education are undergoing changes and modifications across the country in topics ranging from standards to evaluations to technology. Technology is one topic that is impacting large schools, small schools, private schools, and public schools alike. Just as reading created the necessity of the printing press or math made money usable, technology is changing how we perceive information and the way we think (Collins & Halverson, 2009).

## **Changes in Technology**

Technology is changing at a rapid pace and referring back to Moore's Law as described in the introduction, the pace of technological change may be increasing. "Moore's Law states that computer technology doubles every 24 months. Some more recent studies suggest the average time technology doubles has decreased from 24 months to 18 months. The most recent

technological developments follow this law” (Parrett, 2013). Innovations in technology today are allowing small teams of entrepreneurs to accomplish tasks that were previously only manageable by large corporations (Wadhwa, 2012). “According to a 2010 Kaiser Family Foundation study, 85 percent of high school students, 69 percent of middle school students, and 31 percent of eight-to ten-year-olds now own cell phones” (N. Walser, 2011). The phones in the hands of these students do more than make a phone call. With even the simplest type of cell phone students have the ability to text message or set an alarm. Many of the phones are able to take pictures or videos, connect to the internet, send and receive email, and navigate with a GPS system.

Evidence of changing technology is apparent in a variety of facets of our lives such as how we buy merchandise, communicate, travel, work, or relax. These changes are very apparent in education according to a report to provide national data on availability and use of educational technology done by the National Center for Education Statistics. This data shows that 97 percent of classrooms contain one or more computers, 40 percent use computers in their classroom daily for instruction, 84 percent have some type of computer based projector, and 94 percent indicated that their district has a network for online grades. It also reported that 51 percent of classrooms have an interactive whiteboard in their classroom or one available to them with 57 percent of those teachers using it sometimes or often. The data also showed that 99 percent of public schools had internet access with 93 percent having access in their classrooms (Gray, Thomas & Lewis, 2010).

## **Impact of Technology on Education**

Knowledge that used to be available only in books like encyclopedias, and at one time in history available only to the elite, is now abundant, free and available at a person's fingertips. In the book *Spotlight on Technology in Education*, (N. Walser, 2011), discusses how technology is causing schools to do a complete turnaround. In the past, schools placed a greater emphasis on students learning information and regurgitating that information back on a test rather than gaining the skills necessary to acquire and use the information. What schools have been doing is now backwards in today's world. The ease and availability of information is causing educators to begin placing a greater emphasis on teaching students the skills necessary to acquire needed information, to solve problems and reflect on their experiences with others rather than the learning of the information.

Technology is changing education. It brought us distance learning many years ago and that concept has continued to evolve and grow. For some, it is not longer necessary to physically go to school. Instead, students are now able to attend virtual schools (schools where cyberspace has replaced a bricks and mortar structure). People are able to pursue their own learning on their own terms. Technology is allowing people to take education out of school and decide what they want to learn and when they want to learn it. (Collins & Halverson, 2009).

The students' world is not the only facet of education that is changing. The teacher's role, expectations, knowledge base, methods, and professional development are also adapting to technology. "We are rapidly approaching – if we have not already reached – an era where computers, cell phones, iPods, and e-readers are as ubiquitous as pencils in today's classrooms" (N. Walser, 2011). The pieces of technology that students are able to bring into the classroom

themselves is changing and impacting how classes are taught. Students can text answers to a number that sends the information to a website. The website is projected on the interactive whiteboard and both the teacher and the class have instant feedback and assessment data.

According to the National Center for Education Statistics, a teacher's computer and e-mail are now top items that teachers view as essential for success in their classroom (Lanahan & Boysen, 2005). These items provide teachers with a variety of opportunities and possibilities. These two pieces of technology alone allow teachers to provide more prompt feedback and increase communication with their students, parents, administration, and colleagues (Minor, Losike-Sedimo, Reglin & Royster, 2013). Teachers are now able to create their own professional learning network with colleagues across the state or even the country.

Innovations in technology are leading educators to shift their thoughts on assessments as well. Teachers in their classrooms and some states are moving away from the standardized multiple choice test to computer based testing. Computer based testing allows for a better assessment of inquiry, problem solving, communication and critical thinking skills (N. Walser, 2011). Wisconsin is one of those States. According to the Wisconsin Department of Instruction, Wisconsin began a four-year transition in 2010 from paper and pencil WKCE test to the computer based Smarter Balanced Assessment System. This Next Generation Assessment (NGA) is slated to be fully in place across the state in the 2014 – 2015 school year. This computer based assessment will contain selected response questions, constructed response questions, technology enhanced questions, and performance task items.

## **Importance of Integrating Technology in Professional Development**

“The world is changing and we will need to adapt schooling to prepare students for the changing world they are entering” (Collins & Halverson, 2009). In the past, schools had a media specialist that was trained in how to use technology in education. However, in schools today, every teacher needs to be the media specialist and have that knowledge. Technology has opened the door to have more resources available to educators than ever before, but many teachers lack the proper training in how to implement these resources and technology into their classrooms and instruction. In order to prepare students, the teachers who are there to instruct and prepare them, must also be prepared. Teachers need to participate in technological professional development to be adequately prepared in technology at the school level in order to be leaders and educate our future leaders (Minor, Losike-Sedimo, Reglin & Royster, 2013).

It cannot be expected that teachers are simply going to know how to utilize new technology or how to properly implement new technology into their classroom. Educators need to have the opportunity to learn about all the new resources technology has made available to them and how to effectively use them in their classroom. Research suggests that teachers need to be proficient in the technology that they are using in order to be comfortable using it in the classroom. Knowing that students can text answers that can then be sent to a website with assessment capabilities is not something every teacher is going to know. However, if they are taught about it and the countless other possibilities this new knowledge brings with it, they can begin to effectively implement it and collaborate with others. Their proficiency allows them to use the technology appropriately with other resources, strategies and approaches. Teachers that are knowledgeable in effectively using technology in their classroom positively contribute to

making a difference in students' achievements. One way to accomplish this is through technological professional development (Minor, Losike-Sedimo, Reglin & Royster, 2013).

As previously discussed Wisconsin, along with 20 other states, is implementing the Smarter Balanced Assessment System in the 2014 -2015 school year. This is a computer-based assessment. Teachers need to have the knowledge, understanding and technology integrated into their classrooms to properly prepare students to take a test of this type. If our teachers are not prepared for this, then our students won't be either. Along with this computer-based assessment system, the state of Wisconsin is also implementing the Educator Effectiveness Project. This is a computer-based educator evaluation system that will be fully implemented in the 2014-2015 school year as well.

### **Factors of Successful Technological Professional Development**

There are a variety of factors that influence the successful integration of technology into professional development in addition to the factors of successful professional development previously discussed. One such factor is the need for technology professional development to be ongoing. Because technology is continually changing, the technology professional development needs to be ongoing (Schmitt, 2002). Continual or ongoing technology professional development allows teachers to learn the concepts a new technology can bring to enhance their classroom. This is beyond learning the basic skills necessary to use the technology. Teaching an educator only the skills needed to run the new equipment causes educators to look at the new technology as a resource and not fully understand how to integrate the new technology into the classroom. Training teachers in concepts beyond the basic skills helps to change their attitude toward technology and thus integrate into their classroom

instruction (Minor, Losike-Sedimo, Reglin & Royster, 2013). For example, teaching an educator how to use an interactive whiteboard is different than teaching them how the interactive whiteboard can be used. A teacher who only knows how to use the interactive whiteboard may end up with a glorified projector, but a teacher who is taught how an interactive whiteboard can be used gains a tool for independent learning.

Another factor to consider for successful technological professional development is the support and involvement of a district's administration. School leaders need to make it known that technology, the professional development of technology and the integration of technology is a priority to increase staff awareness and for staff to see it as important too (Minor, Losike-Sedimo, Reglin & Royster, 2013). Districts must determine their technological goals, share those goals with their staff, and plan professional development accordingly. The district budget needs to be adequate to support upgrading and replacing outdated equipment in order for the district to continue progressing forward. The administration has the ability to help develop a culture within their district that embraces technology through its own use of technology (Schmitt, 2002).

## **CHAPTER 3**

### **Survey Methodology**

The Survey Methodology used in this seminar paper was a series of surveys related to professional development, Educator Effectiveness, and PLC's (Professional Learning Committees). This is the work plan for researching the best way to teach and sustain the learning of technology with teachers in their professional development.

### **Context**

Potosi School District is a small rural school of approximately 350 students and 40 teaching staff. It is located in Southwest Wisconsin along the Mississippi River. It serves the villages of Potosi and Tennyson as well as the surrounding townships. A majority of the community members work in the surrounding cities of Lancaster, Platteville, and Dubuque, IA, but choose to reside in Potosi for its small hometown atmosphere and local ties.

As a member of the Potosi School District teaching staff, professional development was observed over a time period of 15 years. During that time Professional Development ideas that were created by administration and had a great deal of support in the beginning, but they were not sustained. After the initial training, there would be little to no follow through from the administration regarding implementation of the professional development topic. Follow-up training on the topic would often be denied due to lack of administrative financial planning. The new administrative team in the Potosi School District now has the opportunity to positively impact changes in the area of professional development within the school district.

The Potosi School District, like every school district in the state of Wisconsin, is currently preparing for the full implementation of the Educator Effectiveness Project. This is a

new staff evaluation and accountability system that will be implemented statewide during the 2014-2015 school year. One component of the Educator Effectiveness Project is the use of the MyLearningPlan software system. Staff gathers data, uploads documentation, complete surveys, submit reflections, and communicate with administration as a part of evaluations. To effectively prepare staff for the Educator Effectiveness Project implementation in the 2014-2015 school year and plan effective professional development for the 2013-2014 school year, staff knowledge base was determined. Areas such as SLO's (Student Learning Objectives), Educator Effectiveness, the MyLearningPlan software, PLC's (Professional Learning Committees), uploading materials, and submitting materials electronically was assessed. Determination of the staff's knowledge in these areas was established through staff surveys. The surveys were a part of a larger professional development plan regarding staff climate, culture, and the entire Educator Effectiveness Project. The survey questions that were used are included in Tables 1-7 along with descriptive summaries.

### **Data Collection**

Data was collected on the staff members' level of understanding in regards to SLO's (Student Learning Objectives), PLC's (Professional Learning Committees), Educator Effectiveness, the MyLearningPlan software, uploading documents, and submitting data electronically. An anonymous survey was administered to 40 staff members. Twenty-five staff members consistently responded to the pre-assessment, mid-year assessment and post assessment. This data was collected anonymously using a Google Form Survey that the administrative team created. The Effectiveness Project Guidebook created by CESA 6 was used as a resource to help guide the questions developed for the Google Survey by the administrative team. The team determined that surveys needed to be given in the beginning of the school year

(September/October), in order to establish a baseline and starting point for the professional development days. Surveys were also administered in the middle of the school year (December/January), to monitor progress and adjust any upcoming professional development days. Surveys at the end of the school year (April/May), were completed to assess how effective the professional development plan for the school year had been. Surveys were also used to determine if any additional follow-up professional development trainings were needed for the summer, and to set the starting point for developing the 2014-2015 school year professional development plan.

### **Data Analysis**

In establishing this Professional Development Plan for the 2013-2014 school year in the Potosi School District, it was predicted that one hundred percent of the teaching staff would show an increase in their level of understanding regarding SLO's, PLC's, MyLearningPlan software, Educator Effectiveness, uploading, and submitting materials electronically. It was predicted that one hundred percent of the teaching staff would rate their level of understanding at a six or above on a Likert scale of one to ten in regards to the technological components of the professional development. These components include the knowledge and use of the MyLearningPlan software, uploading, and submitting documentation electronically. A T-Test analysis was run on the Pre-Assessment results and the Post-Assessment results.

### **The Results**

The results of the pre-assessment, mid-year assessment, and post assessment are shown in the Tables 1 – 6. Each table is followed by a description detailing the results of each particular

question, the implications of the research, and possible variables that may impacted the results.

Table 7 gives the summary results of the T-test analysis.

**Table 1** – Survey Results from Question 1 (You need to include the n for each of the

Question	Pre-Assessment (October 2013)	Mid-Year (December 2013)	Post Assessment (April 2014)
On a scale of 1-10, how comfortable are you with the concept of SLO's (Student Learning Objectives)?	88	189	201

assessments)

The administrative team predicted that one hundred percent of the teaching staff would show an increase in their level of understanding regarding SLO's. The results conclude that one hundred percent of the staff that completed the survey did increase their level of understanding regarding SLO's. There are a variety of factors that could have contributed to this factor such as: professional independent practice, professional reading, or independent coursework. One factor that is believed to have impacted the survey results is the continued and repeated exposure to working with, creating, and developing SLO's. Professional development sessions for a concept would build on the information learned at the previous professional development workshops. These results would recommend that the school district continue to build professional development by having topic or concepts build on the previous professional development and continue to consistently revisit concepts.

**Table 2** – Survey Results from Question 2

Question	Pre-Assessment (October 2013)	Mid-Year (December 2013)	Post Assessment (April 2014)
On a scale of 1-10, how comfortable are you with the concept of PLC's (Professional Learning Committees)?	134	202	219

The administrative team predicted that one hundred percent of the teaching staff would show an increase in their level of understanding regarding PLC's. The results conclude that one hundred percent of the staff that completed the survey did increase their level of understanding regarding PLC's. There are a variety of factors that could have contributed to this factor such as: various committee work, professional reading, or independent coursework. One factor that is believed to have impacted the results of the surveys given is the continued and repeated exposure to having staff working within their PLC once it was created. Each professional development session that the school had for staff, built in time for staff to work within their PLC on topic discussions, data analysis, and teambuilding. These results would recommend that the school district continue to build in PLC time into their professional development.

**Table 3** – Results from Question 3 “On a scale of 1-10, how comfortable are you with the concept of Educator Effectiveness?”

Question	Pre-Assessment (October 2013)	Mid-Year (December 2013)	Post Assessment (April 2014)
On a scale of 1-10, how comfortable are you with the concept of Educator Effectiveness?	99	175	191

The results shown in the table illustrate the accuracy of the administrative team’s predictions of one hundred percent of the teaching staff showing an increase in their level of understanding regarding Educator Effectiveness. There are a variety of factors that could have contributed to this factor such as: various committee work, professional reading, attending additional workshops, or independent work in the program. One factor that is believed to have impacted the results is the continued and repeated exposure to having staff working with the concept of Educator Effectiveness. Even professional development time that was focused on other areas still spotlighted concepts of Educator Effectiveness. These results would recommend that the school district continue to build professional development by having topic or concepts build on the previous professional development and continue to consistently revisit concepts such as Educator Effectiveness even if it is not the main focus of the professional development.

**Table 4 – Survey Results from Question 4**

Question	Pre-Assessment (October 2013)	Mid-Year (December 2013)	Post Assessment (April 2014)
On a scale of 1-10, how comfortable are you with the MyLearningPlan Program for Educator Effectiveness?	46		152

The administrative team predicted that one hundred percent of the teaching staff would show an increase in their level of understanding regarding the MyLearningPlan Program for Educator Effectiveness. The results conclude that thirty-one of the forty staff members that completed the survey did increase their level of understanding regarding MyLearningPlan Program for Educator Effectiveness. It was predicted that one hundred percent of the teaching staff would rate their level of understanding at a six or above on a Likert scale of one to ten in

regards to the technological components of the professional development. The MyLearningPlan Program is one of those technological components and 40% rated themselves as a six or above. There are a variety of factors that could have contributed to this lower than expected result. One major factor could be that there are still three professional development times remaining in the school year that will be including the MyLearningPlan Program. Other factors such as: various committee work, implementing other initiatives, independent work in the program, or lack of independent work in the program. These results would recommend that the school district increase the amount of time professional educators have to work with the MyLearningPlan Program in order to increase their proficiency in it.

**Table 5** – Survey Results from Question 5

Question	Pre-Assessment (October 2013)	Mid-Year (December 2013)	Post Assessment (April 2014)
On a scale of 1-10, how comfortable are you with scanning and uploading items to computers?	211		207

The administrative team predicted that one hundred percent of the teaching staff would show an increase in their level of understanding regarding scanning and uploading items to computers. The results conclude that one hundred percent of the staff that completed the survey did not increase their level of understanding regarding scanning and uploading items to computers. These results lead the administrative team to infer that the level of understanding was high to begin with and was maintained. It was predicted that one hundred percent of the teaching staff would rate their level of understanding at a six or above on a Likert scale of one to ten in regards to the technological components of the professional development. Scanning and

uploading items is one of those technological components and 75% rated themselves as a six or above. There are a variety of factors that could have contributed to this lower than expected result. Factors that may have impacted these results are: various levels of staff exposure to these types of technologies or technological resources available. These results would recommend that the school district create a professional development time to review this process and to post procedural steps where appropriate.

**Table 6 – Survey Results from Question**

Question	Pre-Assessment (October 2013)	Mid-Year (December 2013)	Post Assessment (April 2014)
On a scale of 1-10, how comfortable are you with submitting items online?	204		225

The administrative team predicted that one hundred percent of the teaching staff would show an increase in their level of understanding regarding submitting items online. The results are inconclusive as to whether one hundred percent of the staff that completed the survey increased their level of understanding regarding submitting items online or not. It was predicted that one hundred percent of the teaching staff would rate their level of understanding at a six or above on a Likert scale of one to ten in regards to the technological components of the professional development. Submitting items online is one of those technological components and 77% rated themselves as a six or above. There are a variety of factors that could have contributed to this result. Factors that may have impacted these results are: various levels of staff exposure to using this type of process regularly or having the technological resources available to participate in submitting items online. These results would recommend that the

school district create a professional development time to review this process and to post procedural steps where appropriate.

**Table 7** – Summary of Results from the Pre-assessment Survey and Post Assessment Survey

Question	Pre-Assessment	Post Assessment
1. On a scale of 1-10, how comfortable are you with the concept of SLO's (Student Learning Objectives)?	88	201
2. On a scale of 1-10, how comfortable are you with the concept of PLC's (Professional Learning Committees)?	134	219
3. On a scale of 1-10, how comfortable are you with the concept of Educator Effectiveness?	99	191
4. On a scale of 1-10, how comfortable are you with the MyLearningPlan Program for Educator Effectiveness?	46	152
5. On a scale of 1-10, how comfortable are you with scanning and uploading items to computers?	211	207
6. On a scale of 1-10, how comfortable are you with submitting items online?	204	225

The Paired t test results found the P value equals 0.0208 and by conventional criteria, this difference is considered to be statistically significant. The P value is a probability of observing at least as large of a difference between sample means as was observed in the samples collected. There is a 95% Confidence Interval (CI) of the difference of Group One minus Group Two. The CI refers to how precisely the mean has been determined. The intermediate values used in calculations were:  $t = 3.7005$ ,  $df = 4$ , and standard error of difference = 21.186.

<b>Group</b>	<b>Group One</b>	<b>Group Two</b>
Mean	130.33	194.00
SD	66.08	25.57
SEM	26.98	11.44
N	6	5

The comments from the teaching staff were appreciative of the professional development time continually building on previous sessions, having time with knowledgeable trainers to learn about and actually use the program, using relevant and appropriate activities that would continue to be applicable throughout later professional development and the opportunity to explore the program with instruction and on their own. Some staff comments included: “It was helpful to have an opportunity to input actual information in the MyLearningPlan”, “Each time I do this, I feel more comfortable in what I am doing”, and “It is all making sense now”. In reviewing the MyLearningPlan program multiple times during professional development days throughout the 2013-2014 school year, staff retention of how to access and use the MyLearningPlan program, upload documentation, submit items electronically, and locate needed information continued to increase. Based on self-reports, staff members began to incorporate items from the program such as student surveys, self-reflections, communication logs, documentation logs, evaluations standards and indicators in their classroom and their teaching.

In effort to accommodate the various learning styles of the teaching staff, the administrative team utilized multiple instructional methods such as listening to experts, hands-on activities, group analysis, group activities, guided instruction, and individual guided work time. Some of the teaching staff preferred certain instructional methods over others, however, the

administrative team determined through discussion and reflection that it was in the best interest of the entire staff to continue to diversify the instructional methods implemented during professional development time.

### **Plan of Action**

Based on the completed action research for effectively implementing technology into professional development, several recommendations can be discussed. The first recommendation is that the administration work in collaboration with teachers to set professional development goals in the area of technology that tie in with the district's goals for improvement. The second recommendation is that the goals being set need to have short-term and long-term achievements, a plan for ongoing professional development in the specified area, and a method to evaluate both the professional development and the effectiveness of integrating what was learned into classroom instruction. Given the small size of the district and number of teaching staff, it is also important to include a third recommendation that allows the teachers to set and work on these goals independently or to collaborate with colleagues from their own district or another district.

These recommendations will help the district meet the established goals and did answer the following research questions: 1. Are there factors that make a model of professional development successful in preparing an educator to use what was taught in the classroom? and 2. What factors of professional development successfully integrate technology allowing effective implementation of technology in the classrooms?

## CHAPTER 4

### Conclusions and Recommendations

Based on the review of literature completed for this seminar paper, conclusions were formed of the factors of successful professional development in technology. “Successful integration of technologies into classroom instruction not only increases students’ test scores but also fosters student’s personal autonomy and enhances teachers’ proficiency with their technology skills” (Minor, Losike-Sedimo, Reglin & Royster, 2013) as cited by (Bates, Hopkins, and Kratcoski, 2012; Marzano, 2012; O’Connor. 2012; Picciotto, 2012). Models of successful professional development and factors that make them successful were researched. Changes happening in technology and the impact advances in technology are having education were discussed leading into how to successfully integrate technology into the classroom.

The results of the action research and the surveys indicated that administrative support is essential in successful and effective implementation of technology in professional development. Regularly scheduled professional development time that continually builds on the prior knowledge gained from previous professional development also plays an essential role. Results also indicate that having the necessary resources available for staff impact the success of implementation.

The research questions that guided this study were: 1. Are there factors that make a model of professional development successful in preparing an educator to use what was taught in the classroom? Incorporating the needs of the teachers involved, reflecting on the needs of the students, ensuring that the professional development opportunities are part of an overall plan for improvement, involving the teachers in the planning, and collaboration are all factors that have a

positive impact on preparing educators. 2. What factors of professional development successfully integrate technology allowing effective implementation of technology in the classrooms? Factors that successfully integrate technology into professional development vary with the school district and the level of understanding of the current use of technology already in place in the district. An administration that supports technology and technology integration is necessary for successful technological professional development that will effectively be implemented into the classroom. Supportive administration have the ability to create available time frames for teaching staff to work collaboratively, provide necessary resources, and offer encouragement for staff participation through various methods such as incentives. Another factor is for technology professional development to be ongoing and build on prior knowledge gained from previous professional development. A supportive administration will have a greater influence on the likelihood of this happening. These two factors in place allow staff involvement in follow-up professional development to go beyond the basic skills of how to operate the technology to how the technology from the professional development can be implemented in the classroom to have an effective impact.

Areas for future research include a plethora of topics and is only limited to the researcher's interest and imagination. Potential research topics to expand on this research include: a larger demographic, specific age groups, comparison of rural to urban districts, comparison of districts in financial hardship to those that are financial stable, investigating the use of devices and professional development, comparison of districts with a immense amount of technology to districts that are lacking in technology, or how the lack of administrative support impacts successful technological professional development.

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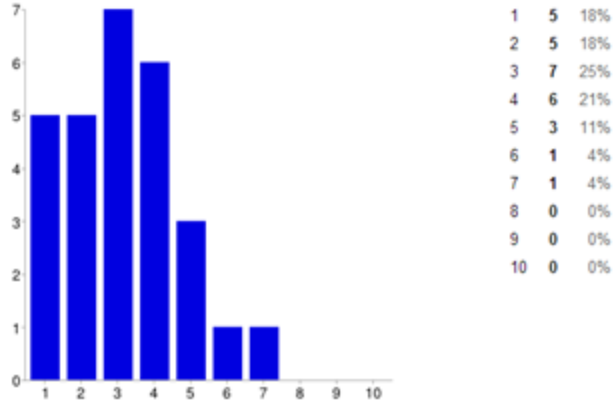
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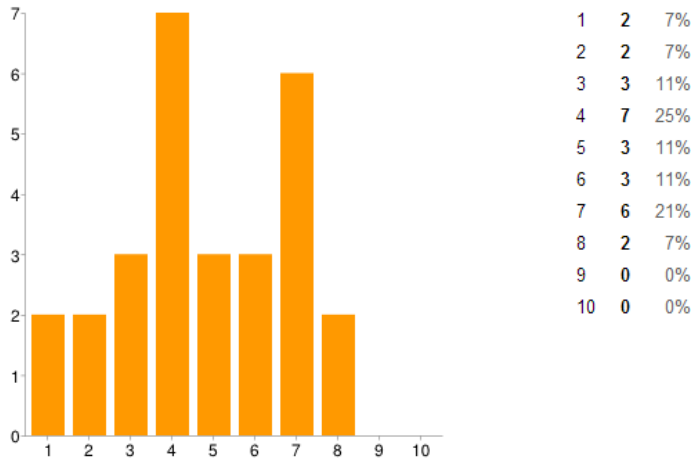
# APPENDIX

## Appendix A: Pre-Assessment Survey Results

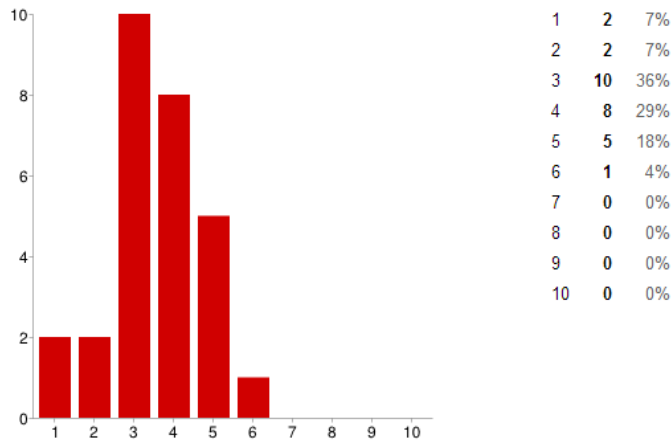
On a scale of 1-10, how comfortable are you with the concept of SLO's (Student Learning Objectives)?



On a scale of 1-10, how comfortable are you with the concept of PLC's (Professional Learning Committees)?

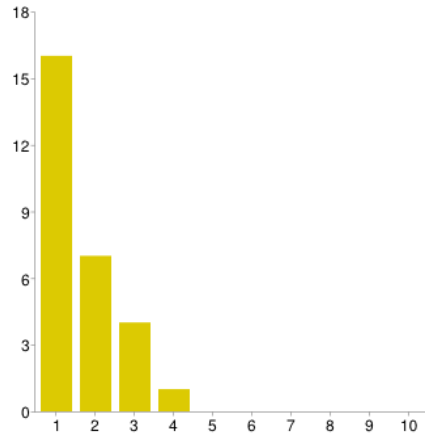


On a scale of 1-10, how comfortable are you with the concept of Educator Effectiveness?



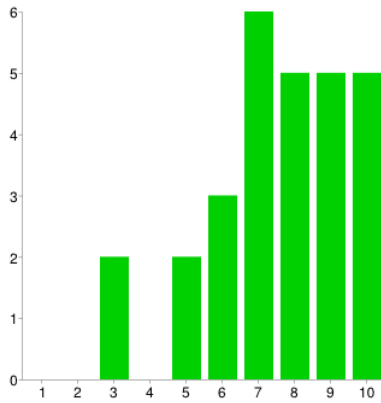
## Appendix A, continued:

On a scale of 1-10, how comfortable are you with the MyLearningPlan Program for Educator Effectiveness?



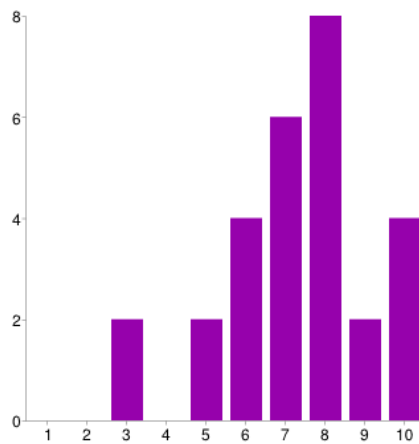
1	16	57%
2	7	25%
3	4	14%
4	1	4%
5	0	0%
6	0	0%
7	0	0%
8	0	0%
9	0	0%
10	0	0%

On a scale of 1-10, how comfortable are you with the scanning and uploading items to computers?



1	0	0%
2	0	0%
3	2	7%
4	0	0%
5	2	7%
6	3	11%
7	6	21%
8	5	18%
9	5	18%
10	5	18%

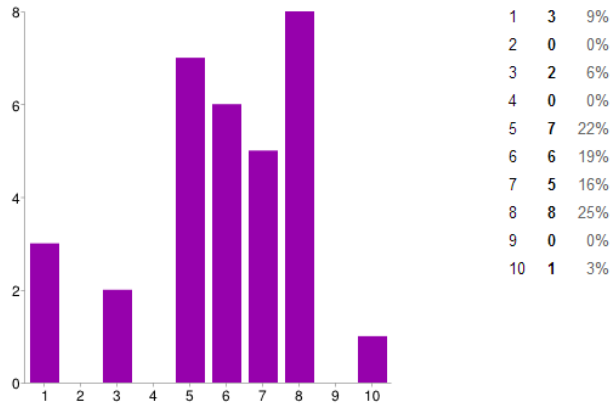
On a scale of 1-10, how comfortable are you with submitting items online?



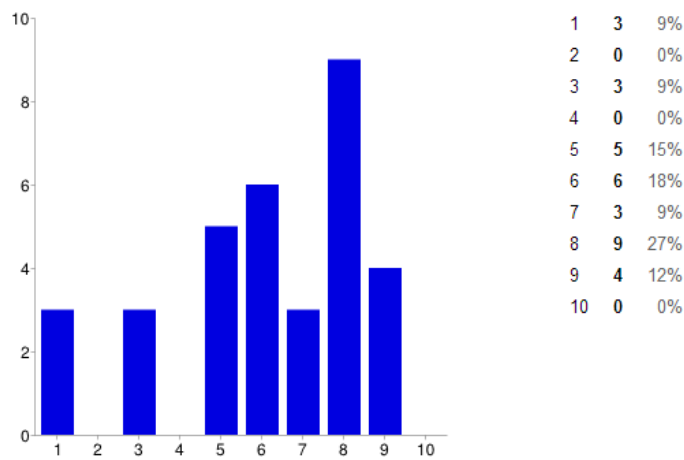
1	0	0%
2	0	0%
3	2	7%
4	0	0%
5	2	7%
6	4	14%
7	6	21%
8	8	29%
9	2	7%
10	4	14%

## Appendix B: Mid-Year Assessment

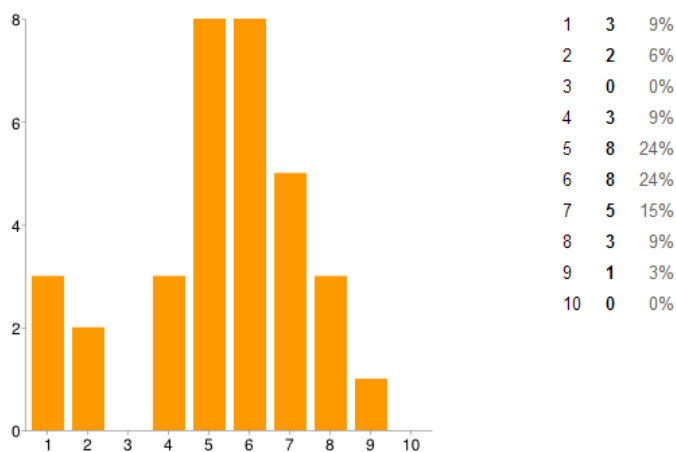
On a scale of 1-10, how comfortable are you with the concept of SLO's (Student Learning Objectives)?



On a scale of 1-10, how comfortable are you with the concept of PLC's (Professional Learning Committees)?

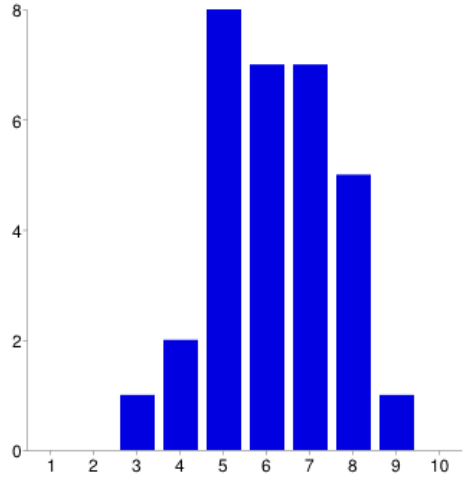


On a scale of 1-10, how comfortable are you with the concept of Educator Effectiveness?



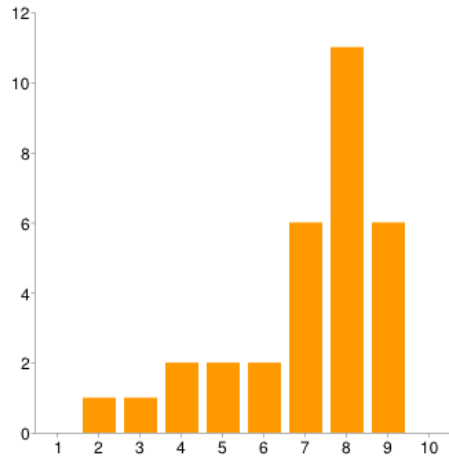
## Appendix C: Post-Assessment

On a scale of 1-10, how comfortable are you with the concept of SLO's (Student Learning Objectives)?



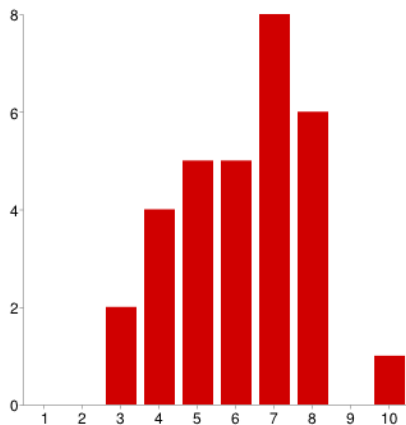
1	0	0%
2	0	0%
3	1	3%
4	2	6%
5	8	26%
6	7	23%
7	7	23%
8	5	16%
9	1	3%
10	0	0%

On a scale of 1-10, how comfortable are you with the concept of PLC's (Professional Learning Committees)?



1	0	0%
2	1	3%
3	1	3%
4	2	6%
5	2	6%
6	2	6%
7	6	19%
8	11	35%
9	6	19%
10	0	0%

On a scale of 1-10, how comfortable are you with the concept of Educator Effectiveness?

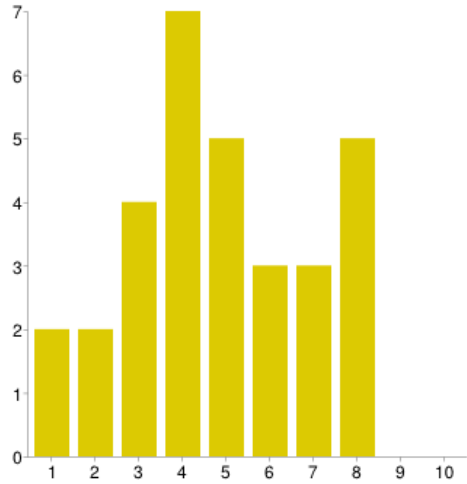


1	0	0%
2	0	0%
3	2	6%
4	4	13%
5	5	16%
6	5	16%
7	8	26%
8	6	19%
9	0	0%
10	1	3%

Bi On a scale of 1-10, how comfortable are you with the MyLearningPlan Program for Educator Effectiveness?

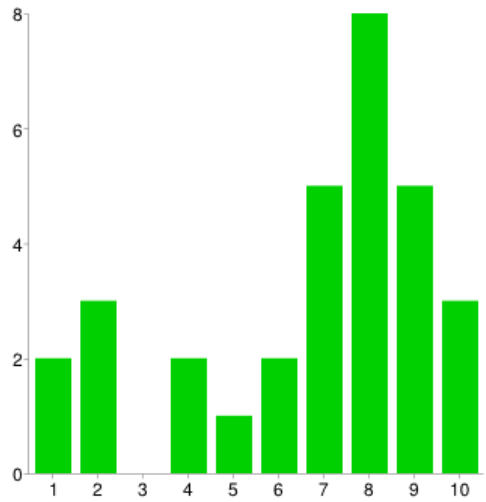
**Appendix C, continued:**

**On a scale of 1-10, how comfortable are you with the MyLearningPlan Program for Educator Effectiveness?**



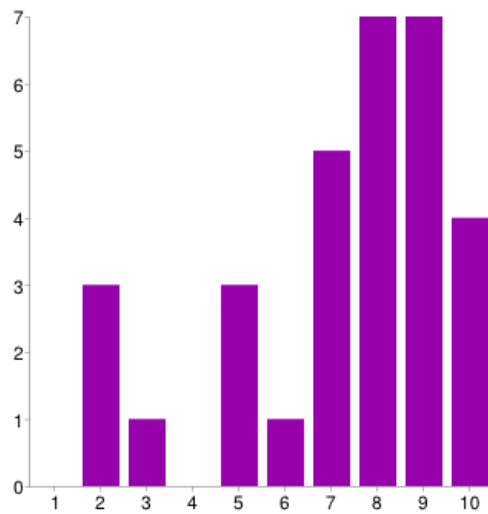
1	2	6%
2	2	6%
3	4	13%
4	7	23%
5	5	16%
6	3	10%
7	3	10%
8	5	16%
9	0	0%
10	0	0%

**On a scale of 1-10, how comfortable are you with the scanning and uploading items to computers?**



1	2	6%
2	3	10%
3	0	0%
4	2	6%
5	1	3%
6	2	6%
7	5	16%
8	8	26%
9	5	16%
10	3	10%

**On a scale of 1-10, how comfortable are you with submitting items online?**



1	0	0%
2	3	10%
3	1	3%
4	0	0%
5	3	10%
6	1	3%
7	5	16%
8	7	23%
9	7	23%
10	4	13%