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**DOES IT COMPUTE?: A STUDY OF THE LONG-TERM EFFECTS OF PROFESSIONAL
DEVELOPMENT**

BY

SMITH R. FREDERICK

B.A., Educational Sciences, University of New Mexico, 1999
M.A., Elementary Education, University of New Mexico, 2001

DISSERTATION

Submitted in Partial Fulfillment of the
Requirements for the Degree of

**Doctor of Philosophy
Language, Literacy and Sociocultural Studies**

The University of New Mexico
Albuquerque, New Mexico

May 2012

Dedication

I dedicate my dissertation work to my family and friends who have gone before me. Andrea Frederick, Dr. Clinton Norris Fisher, Ellen Hasler and Jean Ellen Schulmeister.

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I am grateful to the many people and their support and encouragement of me throughout this process.

I would like to thank the participants in my research for allowing me to collect information on their professional development experiences and the individuals who guided me in my learning and provided a listening ear and helped me find my voice in this research.

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Abstract

Research on professional development for teachers usually focuses on its effects during or immediately after the experience or on teacher's satisfaction with professional development in general. Little research focuses on the lasting impressions and influences. This qualitative study used two focus groups to gather the memories of eleven teachers who became trainers in a high quality and voluntary professional development program ten years prior to the study. The program focused on helping teachers infuse technology into their teaching and develop constructivist pedagogy and used a training of trainers model for widespread dissemination. Teachers responded to four questions about their memories of

the experience, how they felt it changed their practice, the challenges and successes of being a trainer, and the impact of their participation on their careers. Focus groups were audio and video recorded, transcribed, and analyzed using constant comparison and coding to identify recurring and powerful themes. Participants revealed that they found the curriculum resources and opportunities for collaboration as the most memorable features of the program. Many also reported that they experienced somewhat fearful feelings at the outset of the program, but that these feelings abated in the ensuing three years of the program. All participants voiced their success as trainers and learned more about technology through taking on that role. Challenges were related to recruiting new teachers into the program and inadequate technological resources in their schools. All found the program an enhancement to their self-confidence, professional growth and career achievement.

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Chapter 1 Overview

Chapter 1, Introduces a high quality professional development initiative, presents the statement of the problem and the research question for this study.

For the purpose of this study, I will use two pseudonyms. Both are pseudonyms for a corporate sponsored professional development initiative to assist teachers in learning how to integrate technology into their instruction and classroom. The first is the predecessor for the Technology Based Professional Development Program (TBPDP) and will be identified as the Precursor to the Technology Based Professional Development Program (PTBPDP). The second is referred to as a Technology Based Professional Development Program (TBPDP).

In November 2001, a high quality professional development initiative was launched in New Mexico through a grant to the University of New Mexico's, College of Education's Technology and Education Center. The program provided intensive and prolonged professional development aimed at helping teachers incorporate technology into their K-12 teaching environments. Designed by educators, it provided experiential and extended professional development for teachers. In over forty hours of face-to-face workshop time, participants in this project were encouraged to create an individual teaching unit that incorporated and integrated technology. The learning unit included curriculum-framing questions, learning objectives aligned with state standards, models of student work samples, support materials, assessment plans, and implementation plans. Participant teachers had opportunities to continue in their training to become master teachers who conducted trainings in their own school and district. The program conducted rigorous on-going assessment of its offerings and

projects based on the desired outcomes of the program. This study supplements these immediate evaluations by exploring the lasting influence of this professional development program on a group of teachers who participated in the initial years of this programs training in 2001 – 2002 school year. Because the program was, by most standards, state-of-the-art professional development, this study may provide information about how teachers perceive the effect of their continued participation in a program a decade later.

Statement of the Problem

Historically professional development for educators has been packaged and presented as workshops, staff development, in-service days, training and learning communities, and the list goes on, with little regard to what was occurring in the activities or what difference they made in the classroom. Professional development as a whole, over the last several decades has continued to be defined and refined. Gusky (2000) describes this in the following way “for many years educators have operated under the premise that professional development is good by definition and, therefore, more is always better If you want to improve, your professional development program, simply add a day or two” (p. 1). In the broadest sense Little (1987) defines professional development as “any activity that is intended partly or primarily to prepare paid staff members for improved performance in present or future roles in the school districts” (p. 491). The National Staff Development Council (2001), described professional development as “Staff development is the means by which educators acquire or enhance the knowledge, skills, attitudes, and beliefs necessary to create high levels of learning for all students” (p. 2).

In a recent report Teaching and Learning International Survey (OCED, 2009) “professional development is defined as activities that develop an individual’s skills, knowledge, expertise and other characteristics as a teacher” (p. 49). Professional development is defined by the National Research Council (2007) as “comprehensive, sustained, and intensive approach to improving teachers’ ... effectiveness in raising student achievement” (p.i)

Gusky (2000) laments that “Good evaluations are the product of thoughtful planning, the ability to ask good questions, and a basic understanding about how to find valid answers. In many ways, they are simply the refinement of everyday thinking” (p.13). Desimone (2009) asserts that for quite some time the research and evaluation of professional development was little more than recoding the teacher’s general satisfaction with “the offering, attitude change, or commitment to innovation rather than its results or the processes by which it worked” (p. 181). She advocates for change in how professional development is for the most part evaluated. Her recent works call for evaluators to use apply recent understandings from research to improve the how evaluations are designed and measured as well it impact on the teacher and students.

Research on professional development for teachers has traditionally focused on its effects during, or immediately after the experience or on teacher’s satisfaction with professional development in general. Ingvarson, Meiers, & Beavis, (2005) remind us that, until recently, evaluation of professional development for the K-12 teacher has, in many cases, been little more than asking the participants to rate their experience on a slip of paper as they exited the activity. Even when some type of more formal evaluation has taken place, it has for the most part, focused on “documenting teacher satisfaction, attitude change, or commitment to

innovation rather than its results or the processes by which it worked” (Desimone, 2009, p.85). Gusky (2000) asserts that until recently the individuals who provided professional development did not take much notice of evaluating the experience. This could have been purposeful due to the cost or desire to move on to the next activity, or that they lacked the expertise to evaluate the professional experience. Oftentimes schools and districts bring in experts after the fact to determine if the professional activity made a difference in the teachers practice. A recent report entitled Enhancing professional development for teachers: potential uses of information technology by the (National Research Council NRC, 2007) affirms that teachers continue to verbalize their discontent with professional development offerings and advocate for self-initiated learning experiences. Creating Effective Teaching and Learning Environments: First Results from *the Teaching and Learning International Survey* (OCED, 2009) indicates that a significant number of teachers from across the globe “think that professional development does not meet their needs” (p.59).

Goldenberg and Gallimore, (1991) remind us that although there continues to be a great deal of interest in how professional development programs can and do help teachers develop a basis for ongoing change in their practice very few studies have thoroughly researched or reviewed the long-term impact of professional development on teachers and the students they teach. For the most part studies that have taken place after professional development initiatives are completed and done within a few months or occasionally a year or two.

After completing an exhaustive research of the literature, focusing on the lasting impressions and influences of teachers involved in professional development it is apparent there is a need for additional research in this area.

This study was guided by the following research question: What are the lasting impressions of participation in high quality professional development? Specifically, it sought to address the following question: What do a group of Master Teachers who participated in a high quality professional development initiative in New Mexico:

- a) Remember about their experiences in the program?
- b) Perceive as changes in their practice that resulted from their participation?
- c) Understand about their own professional growth ten years after their initial involvement in this workshop?

To address the research questions, I conducted a series of focus groups with a purposeful sample of 11 teachers who completed their training in the 2001-2002 school year and 2004-2005 school year and maintained contact with the program as well as continued to provide support and professional development to their colleagues in their schools.

Overview of Chapters

This study is presented in five chapters. In Chapter 1, I introduce a high quality professional development initiative, the statement of the problem and the research question for this study. In Chapter 2, I review the literature on professional development for teachers. In Chapter 3, I explain in detail the methodology I will be using, the research design, methods of data collection and analysis. In Chapters 4 and 5, I present the findings of my study as well as the implication of the study on me as a researcher and areas of possible exploration.

Chapter 2 **Review of Literature**

*Technology is by no means automatically used by teachers or even
acknowledged by all teachers as being useful in the classroom.
As we are painfully reminded by Fullan (1982),
educational change depends
on what teachers do and how they think.*

Chapter two presents a review of the literature related to professional development for teachers particularly related to helping them to integrate technology into their practices. It is followed by a description of the program the participants in this study were involved in and an explanation of how the project is an example of high quality professional development.

Professional Development

The professional development of teachers is studied and presented across the globe and in literature in almost too many ways to count. But always at the core of such endeavors is the generally agreed upon understanding that professional development is about teachers learning, learning how to think about their learning, and transforming their knowledge into practice for the benefit of their students' growth.

Historically new professional development initiatives seem to go through a cycle of high expectations – limited success – disappointment – and blame. In many cases the blame for these initiatives not working out has been assigned to logistical problems, funding, lack of understanding or commitment, but in many cases the blame has been placed on the educators. Individuals involved in early reform movements seem to have underestimated the importance of the teacher's role in the classroom and tried to impose change from the top down. However

it appears that in many cases there has very limited official support for teachers who tried to implement different, new or innovative ways of teaching and learning (Kook, 1997).

Guskey (2000) points out that, that over the years, there has been an extensive amount of research focused on professional development in education. However, very little of it has resulted in solutions to the challenges of professional development for educators. In many cases the research has ended up documenting how programs of all sizes and content areas have failed (Epstein, Lockard, & Dauber, 1988; Griffin, 1983; Guskey, 1986; Joyce & Showers, 1988; Lieberman & Miller, 1979; Orlich, 1989; Wood & Thompson, 1980, 1993). These conflicting views are well documented in the research of professional development for educators.

For example:

- There are many individuals who remind us that professional development efforts that are developed to create change need to be designed to meet the educators individual needs as well as focus on the on the teaching and learning activities at the classroom level (McLaughlin, 1990; Weatherley & Lipsky, 1977; Wise 1991). While yet others indicate that focusing on an individual educator will only slow down the process and that change needs to across systems and organizations ' if there is to be a chance for real change in the classroom. (Tye & Tye, 1984, Waugh & Punch, 1987).
- There is still another body of researchers that contend that the only way to bring about meaningful change is through a slow and methodical approach that establishes realistic expectations over time instead of expecting large changes to take place in short periods of time (Fullan, 1985; Mann, 1978; Sparks, 1983). Other experts' stress that reforms in

professional development must be self-initiated and executed by individual teachers with the support of school-based personnel if they are going to bring about meaningful change. (Joyce, McNair, Diaz & McKibbin, 1976; Lambert, 1988; Lawrence, 1974; Massarella, 1980).

These opposing views in research have for the most part continued to fuel the conversation and confusion surrounding what is meaningful professional development and how it impacts the practitioner and student as well as leaving, reformers, school leaders, educators, and the general public feeling confused. Many professional development providers and educational leaders are struggling with determining how they can be expected to design implement and support a successful professional development when even researchers and experts in the field cannot agree on what or how it should be done. “While the critical issues seem clear, positive solutions remain elusive as a result, reformers struggle desperately in their attempts to address educators’ many and highly diverse professional development needs” (Guskey, 1995 p. 2).

Guskey (2000) further questions, “Why is professional development important?” and attempts to answer it by suggesting that “never before in the history of education has greater importance been attached to the professional development of educators” (p. 3). It seems that everywhere you turn, there are proposals for school improvement and these all emphasize the need for professional development. He asserts the reasons for this are clear. “Our knowledge base in education is growing rapidly and so too is the knowledge base in nearly every subject area and academic discipline, and much like other professionals, we need to keep abreast of this new knowledge and be prepared to use it” (Guskey, 2000, p. 4).

Additionally, Guskey (2000) is convinced that:

“Modern educational reform requires teachers and administrators to transform their roles and take on new responsibilities. Structural changes in the way schools are organized, shared decision making, alternative school governance polices and efforts to encourage greater parent and community involvement all require educators to change the way they go about their jobs and redesign the culture in which they work.

Professional development is necessary for teachers and administrators at all levels so they can learn these new roles and succeed in them” (p. 4).

The mere presence of professional development in a learning environment does not equate to change in teachers instructional practices, behavior or student outcomes. Guskey (2000) points out that “educators themselves frequently regard professional development as having little impact on their day to day responsibilities. Some even consider it a waste of their professional time” (p. 5). Teachers’ believes can and often do create challenges for professional developers. The lack of value they place on theoretical and abstract frame works, combined with their teaching experiences over years can and does create other types of challenges in particular types of activities and interventions as part of any professional development program or offering. In addition,

“Teachers with years of experience often have developed a healthy cynicism about new programs and new ideas about teaching. They expect that most policies and programs will fade after a few years, and have learned that mechanical compliance or lip service is sufficient response.” (Cohen & Ball, 1999, p. 13)

This attitude brings about what Cohen and Ball (1999) refer to as a “perverse sort of social selection,” in that those “policies and innovations that have the greatest appeal are those least likely to produce any substantial changes in teaching and learning” (Cohen & Ball, 1999, p. 13). In schools, therefore, “something is always new, and many things that were new last year will soon be forgotten” (Cohen & Ball, 1999, p. 13). This constant fading in and out of various programs and policies creates an impression that promotes a belief that “instructional improvement does not require sustained effort,” and as a result, “school professionals learn to marginalize interventions, treating them like unimportant ornaments rather than opportunities for significant learning and change” (Cohen & Ball, 1999, p. 13).

It is critical that high quality professional development be responsive to the beliefs that teachers have and to be skillful in teaching techniques and strategies that “involve discussing these teacher-held beliefs and practices, and connecting them to the practices and fundamental theories that staff developers are discussing” (Richardson, 1994, p. 101). Personal and professional experiences lead us to understand that change is difficult and all too often it is easier to continue along a familiar path, believe or practice than it is to question the professional believes or practices we have developed over years.

Although Guskey (2000) points out the obvious about teachers’ attitudes and beliefs and the research bears out his beliefs, he goes on to ask the question “How can it be that something universally recognized as so important also be regarded as ineffective? Strong evidence indicates that some professional development efforts are highly effective” (p. 5). Certain programs and activities across time have been shown to lead to important improvements that make a difference in the classroom for many years. Keeping this in mind one reoccurring

finding in the research literature for professional development is that almost all-meaningful change in the world of education occurs through and with professional development.

If this is the case than one has to ask why so many individuals believe that for the most part professional development in education is “ineffective, meaningless, and wasteful. Rather educators simply have not done a very good job documenting the positive effects of professional development nor of describing precisely which aspects of professional development most contribute to its effectiveness” (Gusky, 1999 p. 4).

Sparks, (2003) asserts that another fundamental lesson we have learned through school reform movements that needs to be addressed is that there must be more time allocated or even required for teacher learning and planning than is made available in schools today. Professional development – for some type of training or one shot workshops or – short meetings before, during or after the school day just are not enough if the goal is to assist the practitioner in making successful changes in their practice. Spark’s belief is that educational systems can no longer afford the luxury of tinkering with professional development. All parties involved must make a commitment to providing quality professional development that will impact educators and benefit students who are currently in school (CORD, 2003 p.V).

The trend of “tinkering” with education through professional development is not new. Tyack and Cuban (1995) point out that little has changed in the way that language has been used over the last century to “persuade citizens to create a public system of schools” and support the “administrative progressives who were certain that their scientific progress met the needs of all people.” However, the reality is that “many people were left behind by the

apparent march of progress” more often than not obscured instead of “illuminating the task of reform” (Tyack and Cuban, 1995, p. 30). They assert that the importance of “both the optimism and pessimism about the state of schooling” is a reflection of a continuing belief that good education is critical both for the individual and for society. “In recent years about four in five Americans have told pollsters that they think that schools are “extremely important” in shaping “one’s ‘future success’ likewise almost nine in ten said that developing the best educational system in the world is extremely important to America’s future” (Tyack and Cuban, 1995, p. 31). Which if true seems to indicate “that the issue at hand is not to convince citizens that schooling is important;” but to devise “plausible policies for improvement of schooling that can command the support of a worried public and the commitment of the educators upon whom reform must rely” (Tyack and Cuban, 1995, p. 32).

High Quality Professional Development

The literature reflects it is evident that professional development is important for teachers. As educators engage in professional learning activities that are well designed, supported, funded and individualized to meet their needs it provides them opportunities to engage students in a variety of effective and enhancing learning opportunities. However, it is important to remember that traditional approaches to professional development are under increasing scrutiny for their inability to meet the needs of teachers and student. Most individuals recognize that the need for ongoing professional development for all teachers is pressing. Yet If teachers do not continually engage in a range of professional development learning activities, Knight, (2002), asserts that “professional obsolescence will soon enfold all except those involved in lifelong learning” (pp. 229-241). “Within this new image of

professional development, how teachers learn has become as important as what teachers learn” (Jenlink & Kinnucan-Welsch, 2001, p. 705-724).

It is evident that teacher development must be aligned with the daily work of the teacher, as highlighted in the development guidelines of the American Federation of Teachers.

These guidelines affirm that professional development should:

1. Ensure depth of content.
2. Provide a strong foundation in the pedagogy of the subject discipline.
3. Be rooted in the best available practice.
4. Contribute to an improvement in student achievement.
5. Engage teachers with ideas and resources.
6. Be designed by representatives of those who participate in it.
7. Take a variety of forms, including some not typically considered.

(Principles for Professional Development, at AFT.org, 7 June 2002)

These basic guidelines are further exemplified in the very heart of most reform movements and professional development strategies that succeed in improving teaching and learning in the classroom. Darling-Hammond and McLaughlin (1995) contend that professional development for teachers needs to be:

1. Experiential, engaging teachers in concrete tasks of teaching, assessment, and observation that illuminate the processes of learning and development.
2. Grounded in participants’ questions, inquiry, and experimentation as well as profession wide research.
3. Collaborative, involving a sharing of knowledge among educators.

4. Connected to and derived from teachers' work with their students as well as to examinations of subject matter and teaching methods.
5. Sustained and intensive, supported by modeling, coaching, and problem solving around specific problems of practice.
6. Connected to other aspects of school change.

Professional development opportunities that adhere to these fundamental approaches hold the best chance for creating a shift from outdated models of teacher training to a meaningful model of professional development, where teachers regularly tackle and struggle with research and theory to improve their professional practice.

Technology Based Professional Development

Computer use in American classrooms has steadily increased since the early 1980s and its' use for the most part has continued to be questioned. At the same time that computers were entering the school environment in meaningful numbers there was an interest in understanding how these complex pieces of equipment might benefit both teachers and students. Apple Inc. conducted a 10 year research project known as the Apple Classrooms of Tomorrow—Today study from 1985 to 1995. Its' stated goal was "was to study how the routine use of technology by teachers and students might change teaching and learning. ACOT identified effective models for teaching and learning with technology, developing the professional lives of teachers, and diffusing innovation" (p.3). Sandholtz, Ringstaff & Dwyer, (1997) assert that this study is responsible for the set of five stages of concern. These five stages are Entry, Adoption, Adaptation, Appropriation, and Invention.

Table 1

Stages of Technology For Teachers

Stage	Examples of What Teachers Do
Entry	Learn the basics of using technology
Adoption	Use new technology to support traditional instruction
Adaptation	Integrate new technology into traditional classroom practice (Here, they often focus on increased student productivity and engagement by using word processors, spreadsheets, and graphic tools.)
Appropriation	Focus on cooperative, project-based, and interdisciplinary work-incorporating the technology as needed and as one of many tools
Invention	Discover new uses for technology tools, for example, developing spreadsheets macros for teaching algebra or designing projects that combine multiple technologies.

Note: Adapted From Changing the Conversation About Teaching, Learning, & Technology: A Report 10 Years of ACOT Research. Apple Computer, Inc., 2008

Over the last thirty years, computer technology has made its way into almost every school throughout the United States. Across the nation, public education departments and schools have integrated technology into curriculum and standards for student achievement. However, in the late 1980's and early 1990's, almost a full decade after the first personal

computers appeared in U.S. classrooms, there was still little meaningful effective professional development that focused on how teachers could use computers to improve student learning. For the most part those teachers who were attempting to use this new instrument in their classrooms were often self-taught (West, 1990). The companies who sold their products to the schools provided the training that was in place in many cases, and for the most part, that training was focused on how to use hardware and software. Throughout most of the early 1990's there was increased interest, research and hypotheses concerning what constituted effective use of technology but few changes were taking place in the classroom (West, 1990).

In the late 1990s, a large international corporation and other partners funded the Technology Based Professional Development Program in this study and created the PTBPDP a professional development program in which goals focused on:

- Using computers as learning and productivity tools for both teachers and students.
- Using the types of computers and software that are widely available in both schools and industry.
- Creating lessons through hands-on learning that teachers can effectively use in their classrooms.
- Encouraging teachers to work in teams, problem-solve, and participate in peer review of their lessons.

In 1998, PTBPDP project trained over 1,100 K-12 teachers in communities where it had large major facilities and had a history of supporting public education.

“These communities were Santa Clara, and Folsom (CA), Hillsboro (OR), Dupont (WA), Rio Rancho (NM), Chandler (AZ), and Fort Worth (TX). Because of the success of the

program, training opportunities expanded in 1999 and 2000 to three more states, and an additional 2,400 teachers were trained. As the PTBPDP wrapped up in 2000, approximately 700 teachers were trained, resulting in a over 4,270 teachers in three years. The evaluation data from the project (1999) was impressive: with approximately 97% of the participants indicated that they developed new skills that would assist them in integrating computer technology into the curriculum; 94% of the participants thought the training they received would benefit their students during the next school year” (Institute of Computer Technology, 2000, p. i).

It is important to note that the curriculum for the PTBPDP was continually refined as data and information from teachers trained were evaluated. These refinements incorporated:

- Changes that were suggested by master teachers and their participant teachers.
- Additional examples of effective teaching practices using technology
- Current versions of software

As changes were made in the curriculum, the designers of the original curriculum relied heavily on

- Current research in how teachers were using technology as a tool in their personal learning and to increase student learning.
- Its extensive experiences working with and training individuals from education and industry.
- The ongoing participation and feedback from the educators involved in this project

Due to the success of the PTBPDP program, a decision was made to dramatically expand and revise its teacher-training program with the goal of training an additional 100,000 teachers

in the United States over the following three years, and an additional 400,000 teachers worldwide (Institute of Computer Technology, 2000,).

From Pilot Project To A Formal Program

The Technology Based Professional Development Program in this study is a worldwide initiative that was built on the success of the PTBPDP project. It was designed¹ to help in-service teachers to learn how to integrate technology into their classrooms to enhance student learning. The intent of this professional development initiative was to allow teachers to learn not only how to use computers and software but also to use technology to support learning activities that were constructivist in nature and therefore inquiry driven and student centered.

The Technology Based Professional Development Program was designed for K- 12 classroom teachers and provided 40 hours in a workshop, the majority of those hours were spent in front of a computer, accompanied by 20 hours of homework. Throughout this entire experience, teachers were encouraged to work collaboratively to develop a technology-enhanced unit that developed their students' higher-level thinking and problem-solving skills, while meeting the teachers' curriculum goals. Each unit plan was to be aligned with district, state, and national learning standards wherever possible. Teachers created extensive examples of projects that demonstrated what they would accept as evidence of a student's ability to "reason, solve problems, apply knowledge, and write and communicate effectively" (National Education Goals Panel, 1999). Teachers developed a variety of support materials and evaluation tools to assess their students' success. Throughout the entire process, participants

¹ I will use the past tense to talk about the program because I am describing the program as it was in 2001 and 2002. The program has evolved since then, and to use the present tense would be misleading.

were encouraged to collaborate and share with peers. At the end of the workshop, participants displayed their work to peers and educational leaders whenever possible. This sharing provided participants and school leaders with an opportunity to discuss how they created their units but also the challenges associated with creating teaching units that integrate technology into their classrooms. (Institute of Computer Technology, 2000, p. i).

The Curriculum

The curriculum binder for the TBPDP was designed and created by classroom teachers and senior trainers employed by the Institute of Computer Technology in conjunction with the sponsoring corporation. Teachers worked through ten separate and distinct modules, which were aligned in such a way that upon completion of the modules they had developed a complete teaching unit integrating the use of the Internet, Microsoft Encarta Encyclopedia, Microsoft Word, Microsoft PowerPoint, Microsoft Publisher, and if desired, Microsoft Excel. The unit that teachers created could be based upon either material they currently taught or material they would have liked to teach in the future. The goal was for teachers to create a technology-enhanced unit portfolio that they could take back to their school as well as to understand how technology can be infused into other units throughout the year.

The Teaching Unit

All teachers who participated in the 2001 and 2001-2004 TBPDP program completed a instructional plan that consisted of:

- A unit plan with student learning objectives aligned to their state standards.
- Student sample projects to be shared with students.
- A student multimedia presentation sample.

- A student publication sample of some type.
- A student Web site sample.
- Evaluation document for assessing student learning.
- An evaluation document for multimedia.
- An evaluation document for students publication.
- An evaluation document for a student created Web site.
- Teacher support documents for presentation, newsletter, brochure, or web site.
- Student support materials, templates, worksheets, or assessments.
- An implementation plan for the teacher.
- Documents that support the teachers' classroom management practices
- A document that teachers and students could use to cite their work

(Intel Teach to the Future with support from Microsoft, 2001).

Building Understanding, Collaboration and Planning

Module one of the TBPDP curriculum started by introducing the teachers program and the programs goals. Participants had the opportunity to view and discuss sample unit portfolios on the companion CD-ROM, as well as discuss the Portfolio Rubric, a tool they used throughout the training to evaluate their work. Module one is where the facilitator of the workshop developed the foundation for brainstorming, collaborating, and planning on unit ideas.

Teachers were encouraged to work in pairs, groups or individually to lay the groundwork of their unit. A critical component of this planning was the time spent discussing and collaboratively creating essential and unit questions.

Essential and unit questions were used together and referred to as curriculum-framing questions throughout the trainings. These questions assisted teachers in their exploration of content for their teaching unit and served to keep the teacher focused on the content for the entire unit. Participants who were successful in developing their questions were able to utilize higher-level thinking skills and help them fully understand the unit's essential concepts. "To get at matters of deep and enduring understanding, we need to use provocative and multilayered questions that reveal the richness and complexities of a subject. We refer to such questions as 'essential' because they point to the key inquiries and the core ideas of a discipline" (Wiggins and McTighe, 1998, p. 28). The curriculum-framing questions require students to understand the facts, but then call for an evaluation and synthesis of that information to focus their learning and to develop a deeper understanding of the subject. The following are examples of some essential questions that teachers have created to use with their students during their experience with the TBPDP program:

- Why do some organisms survive and others do not?
- What is change?
- How does conflict produce change?

(Intel Teach to the Future with support from Microsoft, 2001).

A great number of resources were made available for the participants to help them build an understanding of essential questions. These resources included presentation materials, Internet resources, videos of teachers and students who used essential questions in their classroom, and an excerpt of Wiggins and McTighe's *Understanding by Design* (1998) that

discusses how to engage and focus student inquiry (Intel Teach to the Future with support from Microsoft, 2001).

This study will focused on a group of teachers who participated in a TBPDP training workshops in 2001 through 2005 in the state of New Mexico.

A Technology Based Professional Development Program in New Mexico

In November 2001, the College of Education’s Technology and Education Center at the University of New Mexico was selected as the New Mexico Regional Training Agency for the TBPDP Program. Over the first 23 months over 5,000-licensed classroom, teachers completed the 40 hour professional development initiative. In addition, over the next 18 months an additional 1,000 teachers completed the program. To date, March 2012, just over 6,000 classroom teachers in all 89 school districts in New Mexico have participated in the program. TBPDP is high quality professional development—experiential, grounded, collaborative, connected, intensive, and sustained. Its initial success is well documented in evaluations immediately following the workshops.

As each workshop ended, the participants were required to complete an online evaluation of the course and the facilitator. The teachers involved in the TBPDP program reported the following:

- 91% of these teachers reported that after completing their training, they felt “well prepared” to integrate educational technology into the grade or subject they teach.
- 99% of teachers who had implemented their lesson plans reported students were “motivated and involved in the lesson.”

- 80% reported “student projects showed more in-depth understanding” than other, comparable work.

(Intel Teach to the Future with support from Microsoft, 2001).

Chapter 3 Methodology

Chapter three presents the Researcher's narrative and positionality, methodology and how the data in this study will be analyzed and the procedure used to facilitate the collection of data.

Researcher's Narrative And Positionality

As a novice educator, new to the classroom and organizational structure that drives the classroom and school, I was selected to lead the New Mexico Regional Training Agency for TBPDP. This involved developing a plan to assure that the educators who took part in this professional development opportunity met the requirements to be a master teacher and yet were representative of the diverse cultures, communities, geographic regions, and schools throughout New Mexico. The overarching goal of this plan was that recruitment and training of educators from these categories would enable the New Mexico Regional Training Agency to provide an inclusive and high-performing professional development environment that in turn could serve as a model for participants when they returned to their schools. Having had a previous career in health care that involved providing in-service training opportunities to staff members in home health care, nursing, administration and ancillary employees the initial design and recruitment was not new or overwhelming. In most cases it aligned with my prior knowledge and experiences working with adult learners. As I began my first year of teaching at the middle school level in 1998, I also began a Master's degree in Education with an emphasis on educational technologies and I was working as a consultant with the New Mexico State University's Regional Educational Technology Assistance program. It provided, technology

integration, professional development workshops to New Mexico educators and administrators. During one of my classes, there was a presentation about a professional development offering that corporation in New Mexico was sponsoring. The offering is identified in this research as the PTBPD program. The representative for the PTBPDP project was interested in recruiting teachers who were seen as or identified as leaders in using technology in their personal learning and teaching. Their goal was to locate five highly qualified educators who were willing to attend a week long training session that focused on learning how to facilitate a workshop for 20 to 25 classroom educators who would be using the PTBPDP curriculum to develop their own technology based thematic teaching units. The part of this initiative that caught my attention was that it was supposed to be designed to support methods of teaching that were project-based, content-based, inquiry-oriented, and collaborative in nature as well as making use of alternative or authentic means of assessing student learning. These were all topics that I had been reading and learning about as a new educator but until this time, I had never had the opportunity to experience. After applying, interviewing and being accepted as a candidate to be a trainer in the PTBPDP I facilitated a week long training and follow up requirements for 25 teachers from different districts and teaching environments throughout New Mexico. The actual training session was eight hours a day for five days. Additionally, participants reported spending approximately 15 to 20 hours over this same time period involved in professional learning outside the class. As I taught and observed the participants in this project, it was obvious to me and it was verified through numerous conversations with the participants that for many this was the first time they had a chance to work collaboratively with their peers in a professional development experience that focused on

using technology to enhance student learning. They discussed their desire to participate in a professional development experience that was meaningful and empowered them, collectively, to discover solutions and create curriculum.

This opportunity to participate and lead in the PTBPDP professional development offerings opened new doors to me professionally and personally as well as providing me with a great deal of insight into the types of meaningful professional development in which in-service educators are interested. Even as a novice educator it became clear to me that if educators were going to be effective in using technology to change or enhance their practice in the classroom it was going to take more than a week long institute or training opportunity. Additionally, my experience and reflections across the PTBPDP project and the TBPDP have brought me to the place I am today as a researcher who wants to know more about how a properly designed professional development endeavor can and does affect the K-12 classroom and the educator long after the initial learning opportunity has ended. Prior to becoming a teacher my professional and career experiences involved learning, teaching and sharing knowledge in settings outside of the traditional classroom. Yet, both groups of adult learners (health care professionals and educators) need more than one or two days of one time learning experiences. They need and want professional development that is meaningful, ties to their professional experiences and knowledge, and just as important as these aforementioned ideas is that it is sustainable across time. Expecting educators or anyone else for that matter to make shifts, and wholesale change in their professional practice that incorporates critical thinking, collaboration, self-reflection and content knowledge with one or two days of training or professional development is unconceivable. Yet that is often time the way that educators are

asked or required to change their teaching practice. Because of my prior career experiences, I never doubted that teachers who took part in a weeklong learning activity were going to find it more meaningful than a single day of in-service training or professional development. Possibly more important, I was a believer, I had participated in the PTBPDP, contributed to the writing of the grant that funded the TBPDP and was selected to be a master teacher. As the program unfolded in New Mexico, I became one of only a very small hand full of individuals who worked with K-12 educators, higher education faculty and school administrators across the nation to implement this program. This unique role provided me great breadth and depth into how educators were using this professional development experience to motivate students, reengage in their own professional learning and in many cases use this opportunity to further their careers. I viewed my involvement in this project very much the same. When all is said and done, being entwined in a project like this created challenges for me as a researcher. For example, how do I know what I know, is the thought I have about professional development my own, is it one that came out of shared discussions with teachers and other trainers, or was it something I read ten years ago about a program. I am not sure how an individual deals with this other than to openly acknowledge that in studies where the researcher is intimately involved in the work, they bring all their experiences, assumptions, bias and background to their research.

Focus Groups

The focus group is a qualitative method of research that can be used alone or with other qualitative or quantitative methods to bring an improved depth of understanding to the researcher and participants. It is a carefully designed series of group discussions designed to reveal insights, perceptions and opinions surrounding issue or shared experience, involving

carefully chosen participants who share common characteristics (Krueger and Casey, 2000). They do not distinguish between individuals who cannot read or write and they can even encourage participation from individuals who may be unenthusiastic about being interviewed on their own or who may feel they have nothing to discuss. Many times focus groups are viewed as a quick and convenient way to collect data from several people at the same time, focus groups openly acknowledge using group interaction as part of the method. This approach encourages participants in the groups to talk to one another, asking questions, exchanging stories and comment on other's views and experiences. The method is particularly helpful when it comes to exploring participants' knowledge and experiences. It can also provide insight to what people think, how they think and why they think the way, they do. The thought behind the focus group method is that group processes can help people to explore and clarify their views in ways that would be less easily accessible in a one to one interview. Group discussion is particularly appropriate when the interviewer has a series of open-ended questions and wishes to encourage research participants to explore the issues of importance to them, in their own vocabulary, generating their own questions and pursuing their own priorities. When focus groups are designed properly, the group dynamics for the most part work well and the participants work in tandem with the researcher, possibly moving the research in new or unexpected directions. Researchers conducting action research also accept focus group methods and those who are concerned with empowering research participants because participants may become an active part of the process of analysis. In some cases, the participants may truly develop a new perspective because of talking with other participants who had shared experiences.

When To Use Focus Groups

Focus groups are widely used in many forms of applied research including needs assessment, program evaluation, curriculum development, and market research. They provide researchers with surprises and insight and participant voice than other types of research. The participants in focus group sessions are not restricted by the choices provided by typical survey research. Participants normally are allowed and even encouraged to say anything they would like to in focus groups. Focus groups accordingly are considered naturalistic (Krueger & Casey, 2000). The researcher listens not only for the content of focus group discussions, but for emotions, contradictions, and tensions. Ultimately this provides the researcher insight in to more than just the facts (as in survey method), but the meaning behind the facts. This is simplistic approach but it provides a major advantage to the researcher using a focus group method: the construction of insight. Focus groups can and do provide reliable naturalistic data that can lead to important insights about participants' beliefs and behaviors (Vaughan et al., 1996). For example, while focus groups participants in a discussion about a shared experience the facilitator or assistant can document information and gather data regarding certain questions in order to gain insight about the experience. This information can be used when evaluating the aspects of design needs, options, and program implementation. It is worth noting that focus groups work best when the topic of the discussion has some sense of immediacy and of interest to all members of the group.

How Focus Group Are Conducted

Focus groups should be conducted in a relaxed comfortable setting, refreshments should be served as appropriate, and arranging the seating in a circle helps to establish the right

atmosphere. The ideal group size is between four and eight people. Group sessions may last one to two hours (or extend into a whole afternoon or a series of meetings). The facilitator should always explain that the goal of the focus group is to encourage people to talk to each other rather than to address themselves to the researcher. They should also introduce the issues or topic to be discussed and clarify their role as an observer and facilitator of free discussion between the members of the group. They should also explain that they may attempt to 'draw out' participants who seem to have little to say and to suggest that the group move onto another topic. However, they should never intervene directly in the discussion, or attempt to 'explain' issues that have arisen, and should without doubt not be seen in an evaluative role. They should always stress that their primary role is, 'to listen.' Keeping this in mind, the researcher should consider taking a back seat at first, allowing for a type of "structured eavesdropping" (Powney, 1998, p. 10). As the focus group progresses, the researcher may want to consider urging emerging debates to continue beyond the stage it might otherwise have ended and encourage the group to discuss the inconsistencies both between participants and within their own thinking. Disagreements within groups can be used to encourage participants to clarify their point of view and to illuminate why they think as they do. Finally, it may be beneficial to present research participants with a brief questionnaire, or the opportunity to speak to the researcher privately; giving each one the opportunity to record private comments after the group session has been completed. Ideally, the group discussions should be tape recorded and transcribed. If this is not possible then it is vital to take careful notes and researchers may find it useful to involve the group in recording key issues on a flip chart.

Types Of Data Focus Groups Yield

Focus groups, when designed and conducted correctly, can help bring to life or provide a voice to the data descriptions of issues, relationships, and dynamics one often finds in quantitative work. They allow you to identify areas of issues and objections, and refine or formulate specific ideas, themes or concepts. It is important to remember that they do not yield hard specific data, e.g., percentages of teachers who like or dislike a professional development initiative, or numbers that show a particular attribute as important - which can be generalized to a larger target audience. Data from focus groups are primarily collected in two forms: field notes and written transcripts. Field notes are notes taken by someone observing the focus group or assistant facilitator who attempts to capture as much of the dialogue among group members and the moderator as possible. Analyzing data from focus groups is fundamentally the same as analyzing any other qualitative self-report data. The researcher has to assemble and compare discussions of similar themes and examine how these relate to the differences and similarities within the sample population. In all cases, it is important to try to distinguish between individual opinions expressed in spite of the group from the actual group consensus. As in all qualitative analysis, unexpected case analysis is important. Therefore, attention must be given to unusual opinions and examples that may not fit with the researcher's overall theory.

How Focus Group Data Is Analyzed

There are number of methods available for analyzing the data that is collected in the course of using focus groups. These methods are discussed in a variety of texts for example Bloor, (2001); Krueger and Casey, (2000); Krueger, King and Morgan, (1998). My initial research

on software programs available to assist the researcher revealed significant number of programs with data analysis for example QSR and NUD*IST, Gahan & Hannibal, (1998); Martin, Higgins, (1998); Catterall & MacLaran, (1998). However, for the purpose of this study, I would like to describe how focus group data could be analyzed with a piece of software that most individuals are familiar with and have access to, Microsoft Excel. Using a piece of software that is commonly found on almost all personal computers will assist the researcher in reducing time spent on learning a new piece of software as well as increasing the speed and visibility of the data. With very little planning and minimal skill with Excel, the data from focus groups can easily be organized and analyzed. Regardless of the way the data is analyzed the transcripts from focus groups require knowing about and understanding content analysis techniques. The analysis needs to be organized, detailed, free of prejudice, and defensible. The entire process involves examining the data from different perspectives to determine the major and minor themes and sub patterns. If a researcher conducts several different focus groups, the process should involve a cross-group analysis. A final thought about the data analysis from focus groups is that the facilitator or an observer from the groups should always be involved in the analysis of data. Nonverbal messages or actions that may be reflected in the transcript are not easy to decipher if the person analyzing the data was not present to note the nonverbal messages. By paying close attention to both the content and the dynamics of the discussions, the various narrative methodologies shift the emphasis from the process of conducting the research to the interpretations of the members who provide the data (Czarniawska, 2002; Gubrium & Holstein, 2002). Knodel, (1993) reminds us that the best way to improve the accuracy of the analysis, is to have the facilitator who leads the focus groups should also lead in analyzing the data. It is

important to note that focus groups are not an easy option. The data generated can be cumbersome and complex. Yet, the method itself is uncomplicated and need not be intimidating for either the researcher or the participants.

Data Analysis

Shortly after beginning my analysis of the focus groups it became clear to me that using focus group methodology to gather data from the participants in my study would provide me with a rich data set. The data ultimately would inform my study and understanding of how teachers remember a professional development initiative as well as how it influenced them as individuals and professionals. The aim of my initial analysis was to look for trends, patterns and themes that occurred in each group. I used the research questions as guides and every line, and section of the text was coded for relevant themes. As themes emerged, I assigned each a code to make sure that as I worked through the transcripts; I was continually reviewing and refining my definitions of the codes. This process did expose an unexpected code, emotions. I continued this constant review and comparison until no new codes emerged. I refined the codes as I worked through each transcript I developed the units of information and they became the basis for my categories and eventually allowed the voice of the participants to be heard across this study.

I decided to use the spreadsheet application Microsoft Excel that has a built in table function and sorting tools to analyze both the demographic data and focus group conversations. I came to this decision after researching ATLAS.ti and HyperResearch both of which support the qualitative analysis of large bodies of text, graphics, audio and video data. My initial thoughts were that both programs simplified the coding process. However, as a

researcher I felt that they both simplified the process so much, that I might run the risk of not understanding or mis-interpreting that data from my study.

Each piece of data and comments was entered into a spreadsheet table as its own field. The table included columns that tracked the focus groups participants by a unique number, one to eleven, to protect confidentiality of participants a series of columns were labeled for coding the data. This approach allowed me to sort table rows by categories and organize the demographic data in meaningful groups. My hope was that this information might help me as a researcher to understand and possibly gain insight into the conversations with the focus group participants.

Strength Of Themes

The strength of the themes were determined through a continuous process of comparing emerging categories and codes as I reviewed each new transcripts with categories and codes I had identified. I entered categories and individual comments in a spreadsheet and began to identify reoccurring ideas or themes across the entries for each question. At this point, I requested the participation of a research assistant in order to more fully develop the properties of the overarching categories for the individual codes. This allowed me to build consensus and confirmation across categories and codes. This process was constant and involved reoccurring reviews of each transcript until saturation was achieved. Barnett (2002) defines saturation as “the idea that no new codes or categories emerge and that coding more transcripts would only produce repetition of themes” (Method of Coding, para. 2).

Procedures

I invited 36 Master Teachers who:

- a) Were trained in the 2001-2002 and 2004-2005 school year.
- b) Continued to be connected with the program.
- c) were located in the central Rio Grande Valley (Albuquerque, Belen, Estancia, Santa Fe, Moriarty, Rio Rancho).

I had contact information for these educators through my role as project coordinator for the PTBPDP site as well as keeping in touch with them through other professional opportunities. This was a purposeful sample and a sample of convenience, since this study was not funded to support participant travel or expenses. The invitation included a brief description of the purpose of the study, what a focus group is, how long it would last, and some possible dates. To provide demographic information on participants, each participant was asked to complete a short survey before each focus group started in which they reported:

1. Their current professional position.
2. The year of their initial TBPDP training.
3. The year of their master teacher training.
4. Approximate number of teachers they have trained.
5. Number of years of teaching.
6. Whether or not they are still active trainers.
7. The date of their most recent training.
8. The district or school in which they work.
9. The extent to which they still use the PTBPDP materials in their teaching.

10. The extent to which they use PTBPDP materials in training their colleagues.
11. Gender.
12. Ethnicity.

I initially scheduled three focus groups to be as convenient as possible to the participants. I anticipated that 50% of the identified teachers would not be able to participate, so each focus group was comprised of five to six participants. In preparation for the focus group, each teacher received a copy of the unit they developed in their initial training. These are on file as part of the archival data for the program, and the exact questions to the protocol for the focus group included the following questions:

1. You have had an opportunity to look over the unit plan you completed in your initial training. What do you remember most about that training?
2. Do you think the experience changed your teaching practice? If so, how? If not, why not?
3. Tell us about your experiences as a trainer. What have been some of your successes and challenges? What has influenced your level of success?
4. How has being a trainer influenced your professional growth? What have you learned?

In order to promote free discussion, the groups were both audio and video recorded. I reviewed the individual transcripts from each group to determine possible topics and themes, patterns and discontinuities within the discourse of each individual and across participants as they answered each question.

I reviewed the audio and video tapes from each focus group's entire conversation several times to reconnect with the conversation prior to the files being transcribed. This provided me with a complete record of the conversations and assisted me in analyzing the data. I then printed out each participant's transcript on different colored paper and read each one. I then began the analysis with a comparison of words used in the answers to the guiding questions I used to facilitate the conversations. I then identified trends and patterns that informed my coding of the data and identified the themes that emerged. Each groups' data was entered into separate tables and then merged together for sorting of similar themes. The themes that emerged are sets of patterns that I identified as core phrases that were repeated across the focus groups.

These topics, themes, patterns, and discontinuities then served as the basis for a coding system that I applied to each participants turn in the conversation. Using the research questions as a guide every line, paragraph and section of the text was coded for relevant themes. As each theme emerged, I assigned it a code so that each time I went through the transcripts the definition were refined. This process was circular in nature requiring multiple reviews of each transcript. Glaser and Strauss, (1967) assert that the constant comparison assures that the researcher is continually comparing the codes and categories to assure that all codes have been identified and solidified.

Both groups met on school campuses and were held in conference areas that were used for professional development functions. The microphones and video cameras were set up prior to the focus groups to assure they worked and were as unobtrusive to the conversation as possible. This preparation allowed me to focus on facilitating the group and not get side

tracked with taking notes. This preparation made the use of the technology less intrusive and participants reported that they did not feel as intimidated by the video recording as they would if I was setting up as we started. I started each group by asking each participant to introduce herself and state what her current job position was (Howe & Lewis, 1993). Participants were encouraged to take turns speaking and to speak as clearly as possible to avoid garbling the recordings (Kreuger, 1988).

The first focus group met on May 20th, 2010 at the Albuquerque Public Schools offices and the second met July 29th, 2010 at the Belen Public schools Professional Development Center. To build rapport in the focus groups each individual was asked to introduce themselves and tell the group a little bit about their current job. Stewart and Shamasani (1990) recommend this method to help break the ice. An additional part of the initial conversation with each focus group was to ask participants to review the unit plan they created in their original training and reflect on what they remembered about the training. The findings of each focus group were organized and reported within the frame provided by the research questions.

Chapter 4 Findings

Schools must inquire deeper into their own practices, explore new ways to motivate their learners, make use of learning styles, introduce multiple intelligences, integrate learning, and teach thinking, and in the process discover the passion and moral purpose that makes teaching exciting and effective.
Fullan and Hargreaves

Chapter four first presents a profile of the participants and then presents their memories of their experiences, perceptions of changes in their practices, and understandings of professional growth as a result of their participation in this professional development program ten years ago.

The Participants

All participants were required to complete a demographic form (Attachment 1) that provided information on participants' gender, age, ethnicity, current position, year of initial and master teacher training, approximate number of teachers they trained, years of experience, and current use of materials. From this data, I created a profile of the group.

Participants were eleven teachers. All participants were female. Five identified as Caucasian, four as Hispanic, and two chose not to identify their ethnicity. Ten of the participants were part of the initial trainings offered in the 2000-2001 school years. The eleventh participant was certified in the 2003-2004 school year. At the time of their initial recruitment and training, all participants were classroom teachers who had indicated that they had a desire to learn to integrate technology into their teaching and were willing and able to continue as classroom teachers and train at least 40 other classroom teachers over the ensuing two years. At the time of their initial training, this group represented a total of

116 years of teaching, and the average number of years of experience was 11 years and six months. They were clearly a seasoned group of professionals at the time of the training.

Nine individuals indicated that they used the curriculum development and essential question resources in their work clarified that these materials are used in professional development settings, one on one and in group settings, where they were working and planning with fellow educators and administrators. This work most often involved the development of a new piece of curriculum that was inquiry based in nature and utilized essential questions. The two educators who indicated they used the materials on a daily basis were both classroom teachers and they reported using the materials with the students in their classes as well as for personal planning, assessment and ongoing professional development.

Memories Of Their Experiences

In order to explore what the group remembered about their experiences in the program, I asked them to discuss the question, “What do you remember most about the initial training?” Although their responses were varied, five themes emerged as important in what they said: Feelings, Learning Experiences, Resources, and Collaboration. Table 2 lists these themes in order of their intensity as indicated by the number of respondents who discussed these themes and the number of responses devoted to that theme.

Table 2

You Have Had an Opportunity to Look Over the Unit Plan You Completed in Your Initial Training. What Do You Remember Most About the Initial Training?

Themes	Number of respondents	Number of Responses
Feelings	9	48
Learning Experience	9	38
Resources	10	37
Collaboration	10	23

As recommended by Krueger (1995), each theme is explained below through presentation of quotations from participants.

Feelings

Participants acknowledged that their feelings, both positive and negative, played a meaningful role in their involvement in the TBPDP I Master Teacher training. Focus group participants focused on this theme more frequently than any other theme in question one. Nine participants made 48 comments on this theme.

Most participants voiced general excitement about their participation, stating “I was very excited and . . . enthusiastic about it.” Others remembered their excitement more in terms of excitement about technology, “I remember being excited about the use of it [computer]” And another remembered excitement about being at the cutting edge of pedagogy, “. . . it was just exciting that we were way ahead of the . . . we were way ahead.” Two other participants mentioned how they developed their confidence as a result of the program . . . I was able to learn myself and felt confident with technology and . . . I was able

to be a master teacher.” Still others mentioned the long lasting effects of that confidence on her career, “. . . this training has definitely not only stuck with me, but made a huge impact on who I am and how I feel about myself . . . confidence” and “I am excited . . . because even the position I am in now is still part of it [TBPDP]. I can’t really separate it.”

Not all memories were of pleasant emotions, however. One person recounted not only enthusiasm but also fear, “I remember the enthusiasm for being engaged as a learner and being terrified at first.” About half of the participants voiced their beginning feeling of being overwhelmed, “I remember being overwhelmed with the technology aspect of at first” and “I remember sitting in a room and just feeling overwhelmed when it started because I had just come from another district that we didn’t have computers in the classroom at all.” Two others mentioned their anxiety related to confronting new technology, “I’d just get frustrated . . . I was like forget it I don’t need a PowerPoint. Forget it I just won’t do it,” and “I just remember always feeling bad . . . because others always seemed to have to show me what to do . . .” Another participant raised issues of practicality, “I remember . . . emotionally being on a roller coaster of so many neat ideas and then the reality of,” “Is this practical? How can I get this done?” Overall, however, participants seemed to see these negative emotions primarily as an aspect of starting a new project, rather than ongoing feelings. In their memories, the negativity seemed to dissipate as the program unfolded.

Learning

Participants related that the training affected their view of education, “It was really affirming that we were on the right track. This is what I wanted to do and this was why I was

in education.” One participant stated there was a disconnect between what was learned in the training to what was happening in the classroom, “I had just finished my Masters . . . and I was learning all these wonderful ideas and practices and it was such a disconnect between what I was learning and . . . what was happening in schools. It was really great to be involved in this program that reaffirmed that this stuff works and this is the way we should be going and that some of these other approaches that we’re really getting pressured from right now are taking all the life and essence out of what learning is all about.”

Several acknowledged they acquired confidence with technology: “I was able to learn myself and felt confident with technology and. . . I was able to be a master teacher.”; “. . . it taught me to be a technology problem solver.”; and “there’s also the profile of the lifetime learner involved in this because the people that I have seen briefly . . . the ones that put technology into action are those types of people.” One participant summed up the training experience with “I truly think the program changed and made us better teachers.”

Resources

Focus group participants reported that they valued the physical resources as well as intellectual resources and peer resources from their training.

The physical resources provided during the training had the highest number of responses. “You know the guides, those big binders that we got, I kind of felt like that was all I needed to take off with.” “Everything I needed was in there . . .” all participants reported they continued to use the resources in their daily practice ten years later. “One of the best things about this experience was the materials every now and then . . . I’ll need to

remember something I do not do often use, like the pack and go.”, and “In fact I use it still; I print out a million different things and use it with people I train.”

Participants mentioned that other resources like traveling for their training and the equipment they received as being meaningful and significant to them even years later. “I remember ten years later what it felt like when the man brought me my printer. I burst into tears . . .” in reference to the training “So it all came out of the [training], just the organization of applying tools, technology tools to the learning.”

Participants’ referred to the human infrastructure that developed during their training experience as a valuable resource. “You know another nice benefit that I had forgotten about is that we were on the same team and we were in different content areas. We were able to engage with each other and make it . . . integrated in all content areas.” Several participants commented that, the modeling of “. . . best practices in creating groups, in working together with partners and things like that are what really stuck with me.” The consensus of all participants was reflected in the following statement made by a participant “I think the resources were just phenomenal. To have the entire website, everything you needed was right there in the book.”

Collaboration

Focus group participants indicated that collaboration of this type was a new and enjoyable experience during their training. Collaboration and professional learning opportunities are all too often limited or do not exist in a meaningful way for classroom teachers (Darling-Hammond, LaPointe, Meyerson, Orr, & Cohen, 2007). Ninety percent of the participants commented about the collaborative nature of the Training. “Wow, I am

meeting people in my district that I didn't know. We got to know each other over that week . . . I was able to go with them and get to know people as people and hear more about teaching in different areas and grades . . . you don't get that opportunity a lot." So even though it's a little scary being in a class with new people . . . It's still a neat experience to meet those other people. As well as how it affected them when they returned to their classrooms I remember calling one of my peers one time and asking her "What did we do? What did we learn? She was so friendly and I "thought" Oh wow it carries over, she's still friendly and she is still answering questions."

To learn about student thinking, standards, and curriculum development, teachers collectively agree that engaging in meaningful conversation with one's peers is essential. A little over a third of the participants recounted what they learned about collaboration as reflected through comments like, "I went back to my school saying we shouldn't separate each other. We should be coming closer together in more of that learning community and so I got that out of the program." Alternatively, they related, "We were always talking and sharing and getting into the pedagogy of the activities . . . It was wonderful to hear all these ideas of people who were in the classroom with you."

When participants were asked, "Do you think the experience changed your teaching practice?" Sixty three percent, eight of the eleven, participants responded. From these responses, I identified the following themes: Changes in Teaching Practice, and Technology Awareness.

Perceptions Of Changes In Practice

Participants commented that involvement in the PTBPDP training had an impact on their personal teaching practices. Focus group participants focused on this theme more frequently than any other theme in question two. Research seems to indicate that providing teachers with high quality professional development opportunities where there are exemplary models of teachers using technology can bring about changes in how they view technology and use it in their practice (Ertmer, Gopalakrishnan & Ross 2000).

Table 3

<i>Do You Think the Experience Changed Your Teaching Practice?</i>		
Themes	Number of Respondents	Number of Responses
Changes in Teaching practice	7	21
Technology Awareness	3	12

Several participants described the change that occurred in their practice in the following ways: “When I think to what extent the training influenced my teaching . . . I could use the word “revolutionize.” Because it helped me put things in practice that I’ve always known as an educator, it helped me put those things I saw and learned into a concrete way of allowing the children a way to express their selves. This program allowed the children to conduct research, publish and present and those three key words became my goal with each lesson.” Another participant described this change by describing their receptiveness as . . . “opening my eyes to what a computer can do in the classroom and now it has carried over because there are so many new pieces of technology to use in the classroom. I am more receptive to anything with the “T” word involved.”

Focus group participants reported that they were more aware of technology and its uses in the classroom due to their experience with the PTBPDP training. One teacher reported, “To me PowerPoint's were something that professionals did up in the Fortune 500 Companies that wasn't something you do in the classroom with little kids. I would never have made that connection and it is something basic and simple. I just thank God, you know looking back . . . that is what this program was able to show me. A second participant noted “I wish I had gotten trained sooner than later and . . . started . . . being able to use it when I was teaching younger children . . . what they would have been able to do and learn and how much better prepared I would have been able to teach differently or better with them.”

When participants were asked: “Tell us about your experiences as a trainer. What were some of your successes and challenges?” All participants spoke animatedly about their work as trainers. From these responses, the researcher identified the following themes: Successes and Challenges.

Table 4

Tell us About Your Experiences as a Trainer. What Have Been Some of Your Successes and Challenges?

Themes	Number of respondents	Number of Responses
Success	10	34
Challenges	11	28

The TBPDP used a trainer-of-trainers model. This model employs a group of teachers who receive early and additional training to prepare them to train their colleagues. Research on this model shows that oftentimes these trainers are not expert in their field at the outset of their new role, but they acquire their expertise through their experiences as trainers. It is a cost effective way to deliver professional development to educators for the

most part teachers seem to like it as they are working with their peers in a collaborative environment. A recent report on Assessing the Train-the-Trainer Model: An Evaluation of the Data & Democracy II Project (2010) seems to point to this as well.

According to (Hill, Palmer, Klein, Howell, Pelletier) the trainer “model is based on (1) adult learning theory, which states that people who train others remember 90 percent of the material they teach; and (2) diffusion of innovation theory, which states that people adopt new information through their trusted social networks. (p.1)

What the participants explained about their success and challenges demonstrate this phenomenon. Focus group participants defined success in a variety of ways. How they used the materials or training, they received, through the trainings they conducted and an increase in personal confidence. One participant described her success in the context of how she learned more by helping others as well as her increased confidence.

“ . . . one of the things I learned a tremendous amount from and was very successful with was trying to fix or help someone fix something that they couldn’t get to work or they goofed up. I was not afraid as you say of playing with it . . . I knew I was not going to break it, you know . . . I learned a lot from that.” “I just felt confident.”

Another related her success to her first training experience with a peer

“ . . . we found through teaching together that my strengths were her weaknesses and my weaknesses were her strengths . . . it was back and forth it was a success we learned from each other and grew, it was great.”

A third participant identified not only her success but also her peers and students in the following statement.

What I was able to do is . . . I pulled my science department at the middle school . . . together. We knew what the goals were for our department and we knew everything about our content all that was a non-issue. We were all at the same school and we had a blast. . . When we went back to the classrooms, we supported each other. That was very, very helpful and . . . We all shared in the success teachers and students alike.”

When participants referred to their success on a personal level it was often through the confidence, they gained as being involved in this professional development endeavor. For example, one participant described her success in the following ways.

Its kind of fun to be the technology expert at school . . . I have just pushed forward to as they have brought out new things [Technology]. I feel comfortable playing with it and trying it all because I have that background [Training].

When her school recently switched from a PC to a Mac environment, she found herself responding.

“I will take a Mac. We will be a Mac school because I knew I could figure it out” . . . because I had been through this training. So this training has definitely not only stuck with me but it has made a huge impact on who I am, how I fell about myself confidence and all those kinds of things too.”

One participant noted the following about the success of the participants in this program.

“It seems like a lot of the teachers who were in the program [Participants] or trainers [Master Teachers] in them have really moved on to different jobs as well and become professional trainers of adults. It seems like several have moved on because they have gained those skills to be able to facilitate adults and teachers . . . It prepared us, I think

to really spread out in our careers and it seems like a lot of people have been very successful.”

When participants were asked if they faced any challenges as a trainer?

All eleven participants related the challenges to two areas. The first was the access to computers and the obstacles that created for them as trainers and teachers. The challenge that teachers face trying to access and integrate new technologies in the classroom and pedagogies is well documented in the literature (Cuban, 1993; Cuban, Kirkpatrick, & Peck, 2001; Franklin, 2007; Hayes, 2007; Hernandez-Ramos, 2005; Judson, 2006; Schussler, Poole, Whitlock, & Evertson, 2007; Wozney, Venkatesh, & Abrami, 2006). One participant noted the single most frustrating part of her training experience was “. . . the worst thing is not having the equipment to do what you want.” She added I went right back to school and said we have to do this in our classes . . . I had to start focusing on getting computers in the classroom that is all I could think of.

That became her “focus and obsession” at the time and it “still is.” A second participant described her challenges with access through the lens of her students, “The worst thing was trying to apply it with my students . . . because I really had no access to the computer for social studies.”

The second set of challenges that all participants commented on as a challenge had to do with recruiting participants for training opportunities. One participant remarked, “. . . the only thing that bothered me was trying to recruit teachers.” A second stated, “I think that is why I stopped being a Master Teacher . . . I recruited everybody I knew and that was done and I didn’t have time to recruit outside my school.” A third comment captured both

themes in the following statement “. . . while you were recruiting you also had to have a working lab . . . I had to borrow a lab during the summer because we didn’t have a lab available. That was kind of difficult. That was a hurdle.”

Learning

When participants were asked, “Do you think the experience changed your teaching practice?” Ninety percent, ten of the eleven, participants responded.

Table 5

How has being a trainer influenced your professional growth? What have you learned?

Themes	Number of respondents	Number of Responses
Professional Growth	10	53
What I learned	7	17

Participants identified how the TBPDP training impacted their professional growth through the following comments: According to one of the participants it helped her “decide to go into . . . my Doctorate in Learning Technologies . . . It kind of sets you up to look beyond you know what you’ve been doing.” Another similarly noted comment was, “I am completing my doctorate and I think it's because of the TBPDP.” Another participant noted how it changed her view of technology in the classroom.

“Before the training I would have been one of those teachers that you would be butting your head up against saying, I don't need a computer in my classroom. I learned with books, my students could learn with books. But because of this [training] I learned to see that there was so much more and then to see the need for training students to be able to use them [computers]”.

Another participant related their growth to their prior knowledge and how students were able to demonstrate what they learned.

“I always knew about the cone of retention as a teacher, but not until I had this tool [computer] where they [the student] could present what they had learned did it make sense to me. That when they are able to teach or demonstrate what they have [students] encountered in their researching and their publishing that it makes a whole difference . . . all of a sudden they become the experts.”

Or, as one participant simply described her growth in the following way “I don’t think I would have been as good of a teacher as I was if I hadn’t had that [training] I think it was influential to me.”

Focus group participants recalled what they learned about being a learner and its impact on them. One participant phrased her comment about what she learned in the statement that follows: “I think that you just keep them [technology skills] for life. I learned to keep my teaching and learning current with where the world is and how our world is connected through technology.” While another remarked about what they learned and the impact it had on her career advancement, “It [the training] gave me the confidence to learn new things, to go forward. It is a large reason why I got the job I have now, because I had the TBPDP Training.” One participant stated, “It gave me the confidence to learn new things, to go forward.” While one observed that, it made her remember “. . . what it's like to be a runner, what it's like to be a student.”

Another participant described how what she learned made her a better teacher in the following comments. “I think something I use the most, as a teacher, was the

importance of looking ahead with your assessments, how you were going to evaluate the kids. That was something that really changed my teaching and made me a better teacher.”

A final remark that a participant made was “I am excited that I went through the training because even the position I am in now is because of the experience and things I learned not only the technology piece but the more important piece to me was how you delivered instruction to the classroom.”

CHAPTER 5

If all difficulties were known
at the outset of a long journey,
most of us would never start out at all.
Dan Rather

In this chapter, I discuss what I learned about professional development, the use of focus groups in qualitative research, and myself as an educator, a participant in TBPD program, a developer of professional development, and a researcher.

From Student to Researcher

When asked what I know about myself as a researcher I have to stop and reflect about my journey as an undergraduate student, graduate student and doctoral candidate. Each step built on the other and each was different. The part of this journey that is directly related to this piece of research is my work as a doctoral student. It was very different from almost anything else I had ever done. At times I was unsure what I was learning or even if I was. I found the actual course work to be informative and for the most part unstructured. I only realized after the fact that the course work was the easiest part. I had a dissertation topic and I even had a job. The one thing I did not have was any idea on how to get started, no course syllabi, no comprehensive exams no milestones of any kind. Oh, how I missed my course work.

I discovered that being a researcher much less a good one involved reading, more reading, reflecting on what I read, and maybe a little writing, more writing, revisions, more reading and more revisions. I also came to understand that the whole process was about me. Me reading, me thinking, me writing, my understanding who I am as a learner and researcher,

me becoming a critical thinker who applied what I learned to my practice one might call this the development of my professional role.

Based on my role as a doctoral student and my experiences in that capacity, I would assert that my journey is parallel to the path taken by many classroom teachers as they engage in professional development activities. I was engaged in a professional activity that helped develop my role as a researcher. Glattorn, (1995) describes professional development for teachers as “. . . the professional development a growth a teacher archives as a result of increased experience and examining his or her teaching systematically” (p. 41). Linda Darling-Hammond asserts that “. . . effective professional development involves teachers both as learners and as teachers and allows them to struggle with the uncertainties that accompany each role.” This reflective activity was sustained over an extended period. From the time, I assisted in the development of the initial TBPDP proposal to now. I have been involved in a reflective process that has been transformational in nature. King (2002) describes transformational learning as:

Originally explicated by Mezirow's (1978) research, transformational learning theory conceptualizes and describes learning as a process of critical reflection and self-examination of one's worldview in light of new knowledge and a fundamental reorganization of one's perspective or frame of reference (Taylor, 1998). This theory can greatly assist in framing our understanding the changes educators experience in their perspective and practice of teaching because of their learning. (p.284)

Professional Development

From east to west and north to south across this nation and around the world there is little doubt that the school systems over the last two decades have faced challenges, both from within and outside the profession. These trials have been numerous and many times conflicting. For much of the last decade these challenges have dealt with students not making adequate yearly progress, as schools are faced with endless challenges such as changing demographics, a sense that students are no longer interested or engaged, the general public's belief that education is declining, and the ongoing problems of attracting and retaining highly effective teachers. As these pressures have increased so has the recognition and conversations surrounding the classroom teachers expertise and the difference a highly qualified and effective instructor makes in student outcomes and achievement. Linda Darling-Hammond (1997) describes this as follows; "Teachers who know a lot about teaching and learning and who work in environments that allow them to know students well are the critical elements of successful learning" (p. 8). Keeping this in mind one has to ask how does a teacher become an individual that "knows a lot about teaching and learning" as well as work in the right environments? One might assert that the answer is high quality professional development for the classroom educator and instructional leadership.

The professional development literature draws a significant and important link between student achievement and high quality professional development (Darling-Hammond, 1999; National Commission on Teaching & Americas Future; NEPG Monthly, 2000 Wenglinski, 2000). Research has demonstrated that the most effective forms of professional development that impact the classrooms are the ones that are sustained over a period of time, that engages the

teachers in important and pertinent activities, that promote collaboration between peers and clearly articulate a vision of student achievement. (National Foundation for the Improvement of Education, 1996; Sparks, 2002)

Everywhere one looks there seems to be a new professional development model that holds the promise of transforming the educator into a highly effective instructor who makes a difference in student learning yet very little seems to change in the classroom. Universities, Professional Organizations, Educational Centers, Corporations and Individuals hawk their wares at conferences, book offerings, magazines, and online opportunities. Professional development has become a very expensive and profitable endeavor. This is reflected in a recent report titled: *Teacher Professional Learning in the United States: Case Studies of State Policies* (Jaquith, Mindich, Chung Wei, and L. Darling-Hammond, 2010)

Since the enactment of No Child Left Behind in 2001, Title II has provided nearly \$3 billion annually to states and districts to improve teacher qualifications and teacher quality, among other uses, with nearly 40 percent of that being used for professional development in 2009, as reported by the U.S. Department of Education. (p.4)

Forty percent of \$3 billion dollars turns out to be \$1.2 billion dollars annually and \$12 billion dollars of public funds over the last decade have been spent on professional development of one type or another.

Given the perceived potential and promise of transformative professional development one is prompted to consider what, is it worth? 1.2 billion of public funds plus other funding sources equates to a significant portion of a districts and schools operating budget, (Tracey & Walsh, 2005) Research tells us that a great portion of the time these professional development

experiences are neither wanted nor needed by the classroom teacher. In many cases they are not even tied to a districts overall student achievement goals. In a survey conducted by Public Agenda (Fracas, Johnson & Duffett, 2003) 50% of teachers who responded indicated that the professional development they are provided makes little difference to them. Keeping these factors in mind, I wanted to know what teachers thought about their experiences with a professional development initiative that they were involved in a decade earlier.

The TBPDP was just one of the many professional development offerings that emerged a little over ten years ago. Its intent was twofold. First, it was a philanthropic effort to provide classroom teachers with a constructivist approach to integrating technology in the classroom rather than a “transmission-orientated model,” participant teachers were treated as active learners. Second, the goal was to improve instruction in math and science at the classroom level in order to increase students’ preparation and interest in these career pathways.

The constructivist approach that the TBPDP used in this professional development initiative reflected what the research at that time considered best practices in teachers engaged in teaching, observing, assessment and the process of reflection. (Dadds, 2001; Darling-Hammond & McLaughlin 1995; King & Newman 2000). This type of offering was in many senses a major departure from the more traditional models that served as professional development. These traditional models were more in the vein of in-service trainings or staff development that focused on offering teachers new or additional information on a particular aspect of their work associated with teaching.

My study indicates that at least for ten percent of the participants from the original group of teachers trained in year one of the New Mexico TBPDP project, it had a profound impact on them and their practice, and their career paths.

The key findings from the focus groups I conducted are as follows:

The participants consistently responded positively to the training they were involved. At the time of the focus groups 100% of the participants reported that the skills, theories and ideas that they learned through their participation in the TBPDP program were still being used and influencing their careers and classrooms a decade later. For this professional development program to make such a difference over a ten-year span, it had to be relevant and embedded within a wide-ranging system of learning and improvement that readily supports the teachers' daily work life. As one participant stated,

“I think that it [the training] is a huge piece of who I am now. I was very shy and I really do not think I could do the job I am today if I hadn't had the that background and training to become an TBPDP teacher . . . The seeds that were planted so many years ago that grew in so many directions; It's amazing”

Although there was a reoccurring theme about pre-existing conditions regarding access and support of technology at the class, school and district level that participants feared could cause problems for them to implement were overcome and all participants felt that they were successful in their training and the training of other educators. A participant described the quandary of access to technology as follows. “I still remember going to your classroom and trying to figure out how we are going to power up all the computers we borrowed and moved in”

One hundred percent of the participants felt that their participation and skills they gained through the TBPDP program contributed to their success in the classroom as well as opened other career pathways within the educational setting for them. One participant summed this up with the following statement, It [the training] really prepared us, to think, to really spread out in our careers . . . it seems like a lot of people [participants] have been very successful.”

Based on the data it appears that the participants in this group are assuming leadership roles, they attribute that to their professional experiences during the training they participated in, and the professional experiences they had in training as well as the changes in their practice.

All participants reported that they encountered formidable obstacles when it came to recruiting for course participation and that those obstacles were ultimately one of the reasons why they were no longer pursuing their certification to continue as TBPDP master teachers. A participant in the following comment described this decision “. . . I stopped being a master teacher because I recruited everybody I knew . . . “

My participation in the TBPDP program and my commitment to the pursuit of a doctorate degree continued over a ten-year period. In many cases that equated to the time that was required to complete six hours of course work a semester. At other times it meant reading, reflecting on what I read and engaging in conversation to build understanding of what I was reading. This continued hour after hour, day after day, year after year until I was ready and able to demonstrate what I know through my dissertation. Both had a profound effect on my life.

The participants in this research committed equally significant time to developing themselves through this professional development program. In the case of at least two of the participants, they directly link their involvement in the TBPDP project with motivating them to complete their doctorates. In an attempt to reflect the time commitment that each of these individuals made as part of the professional development work they completed as TBPDP master teachers I have deconstructed the hourly obligation that each fulfilled.

Each participant was required to complete 40 hours of face-to-face instruction and approximately an additional 20 hours of work outside of his or her class work during her training week. This equated to a 60-hour commitment just to be certified. Between the 2001-2002 school year and the 2006-2007 school year the eleven participants reported training 1280 participant teachers from the districts they worked in. Each participant conducted approximately six face-to-face classes during this time and on average, they trained 116 teachers during this period.

Each class conducted involved 40 hours of instructional time and 20 hours of recruitment and prep time for a total of 60 hours. The 20 hours of recruitment and prep time was an average that was verified by me during the time I was coordinating the New Mexico TBPDP. The total amount of time spent recruiting, prepping and conducting these professional development workshops averages out to 360 hours of emersion, in professional development. Across the five-year period that these workshops were conducted, this equates to 72 hours annually per participant.

Recent studies completed by the National Center for Education Statistics (NCES) reflect that in 1999–2000, “99 percent of teachers surveyed reported participating in professional

development activities over the past year” (p. 11). However the time involved in these activities were reported as being brief in nature. A little over 50% of the respondents reported the equivalent of one day or less of professional development, and only a small number reported more than thirty hours of study within the preceding year (National Center for Education Statistics, Characteristics of Public School Teachers’ Professional Development Activities: 1999–2000).

So why did this group of educators commit to conducting and taking part in a professional development that at the time required so much more than what appears to have been taking place in school settings across the country. One could make the case that it was the incentives that each Master Teacher received, a \$5000 grant to improve the computer student ratio in their classroom at the completion of their training as a Master Teacher or, the laptop each received to assure they had the equipment they needed to facilitate their participant teachers’ workshops. Possibly, it was the honorariums that they received for completing each participant class that had more than 17 teachers in it. Alternatively, is it possible that it was something else altogether different? Was it the thirst to know more about their practice as an educator or could it be as simple as just the desire to understand how to use computers in the classroom. Is it possible as one of the participants stated we “were the cream of the crop, the most motivated, so we were going to see the most progress . . .”

I know that through this experience I have learned a great deal, about what makes for a successful professional development experience with educators, and to some degree maybe even more about how to evaluate what the teachers involved in these types of programs think

about them. I believe that using focus groups in educational research holds great potential for understanding what it is that teachers want out of a professional development.

What I Know About Focus Groups

I really wanted to use focus groups as the methodology for this research because they seemed to provide me a time-efficient means of collecting data from a reasonably wide range of individuals that participated in the TBPDP. As I researched focus groups, I became convinced that they would allow me to view and interact with the data rather than generating quantitative data and producing results that are representative of, or generalizable. This being said the surprising part of using focus groups was that they provided me a wealth of perceptions, feelings and attitudes from the participants. This experience has convinced me that focus groups will continue to become an increasingly popular data-collection tool used by educators who are interested conducting qualitative research. That being said they are not without challenges.

Focus groups have been around and used by Social Scientists as an alternative to conducting interviews since the late 1930s. They are an outcome of Social Scientists desire to have the researcher take on a less commanding and controlling role. Rice (1936) asserted that data obtained from an interview was as likely to contain the researchers' preconceived ideas as the individual that was being interviewed. Their use and appeal increased in the late 1930 and 40s as they were used and cited in research by Roethlisberger and Dickson (1938) and Carl Rodgers in (1942). Even though focus groups seemed to hold a great deal of promise in qualitative research the academic world for the most part ignored them until the last few decades when academic communities began to rediscover and adapt them from their use in

marketing to work in other areas of research. In many cases the academic communities revisited the original works of Merton and Kendall (1946) to understand the procedures he advocated to become common practice in focus group interviews. Currently there are a number of different ways that focus groups are being used in research. They are market research, non-profit and profit environments, participatory researchers or where the community is involved in the research and academic and scientific world (Kruger & Casey, 2009).

Focus groups work best when the participants feel safe comfortable and view their fellow participants as being like themselves. (Merton, Fiske & Kendall, 1956). Keeping this in mind I worked with two school districts, to locate a space on their main campuses that were conveniently located for most participants as well as being comfortable and reflective of the space used by most of the participants for professional learning. This space provided the participants with an environment that they were accustomed to and felt as though they were a part. Each group was provided with a small writing tablet and pen to jot down any thoughts that they may have as well as cold water and mints.

The success of a focus group to a great deal depends on the facilitator and their experience in directing the interaction and inquiry of the focus group (Denzin & Lincoln, 1994). It is essential that the facilitator understand that they need to determine if they are going to use a very structured or unstructured approach in a focus group. Merton et al. (1990) asserts that focused group interviews “. . . will yield a diversified array of responses . . .” (p.137). After reviewing the literature, I determined that the research I was conducting would be best served by using a focused approach. This involved developing a set of questions that were carefully

predetermined and sequenced so that they were easily understood and in a reasonable order for participants to respond to. The beginning questions were more general with each following question becoming more specific. The questions were open ended and I assured all participants that there was no right or wrong answer. I was only interested in understanding their comments and thought, about the TBPDP training that they participated in.

Participant selection in focus groups depends a great deal on the purpose of the research. Stewart and Shamdasani (1990) recommend that convenience sampling be used and that the focus group should have been representative of the larger population. Based on this the initial group of invitees was 36 teachers who had participated in this professional development activity that took place in the Mid Rio Grande Valley. The 36 individuals represented the general demographics of the original 120 teachers who participated in year one of the TBPDP project. They were also individuals that I had kept in touch with through professional initiatives and whom I had available contact information.

I originally planned for three focus groups however based on the number of individuals who responded that they were willing to participate in this research I determined that there were only enough participants for two focus groups. Each group was designed to contain four to six participants however, the first group ended up with eight due to scheduling conflicts and the second contained three new participants and one participant that had arrived late at the first group. The small number of participants in the second group did pose challenges in the following ways, limited group interaction, and dominate personalities created challenges in making sure all participants had the opportunity for their voice to be heard. Merton et al. (1990) noted that the size of the group is important if it is too large, it has the potential to be

unwieldy and could possibly prevent participation. However, if it is too small it may fail to provide the necessary interaction needed to assure that the outcome is greater than a single interview.

Using focus groups to conduct qualitative research of the nature of this inquiry has its advantages and disadvantages like any other method, quantitative or qualitative, there are cases where they might be the preferred methodology or they should not be used. Having researched and used focus groups as a methodology for my research I would assert that that the advantages are:

- The data can carry more weight due to the limited control the researcher has over the participants.
- When facilitated correctly the social interaction within the group may enrich the data.
- In best case, situations the participants can control the discussion and additional data may emerge that is significant to the researcher and participants.
- The conversations with participants can and provide greater strength in their responses than a survey.
- It is relatively inexpensive to conduct and less time consuming than case studies and interviews.

The disadvantages of the focus group that I experienced are:

- Unless carefully moderated the interactions may be subject to a general groupthink.

- One participant can dominate if other participants are quite or shy.
- For the most part, you are unable to generalize your findings from groups that are too small.
- The role of the facilitator can sway or check the participation of the group.
- Participants must feel comfortable with the setting and each other.
- Invitees may commit to the group but not attend and this can affect the size of the group.

One of the biggest challenges that I encountered was locating some form of appropriate training for how to manage and conduct focus groups. A great deal of the literature that I reviewed did not describe in detail the actual conduct of focus groups in the field (Watts & Ebbutt, 1987). Although I did locate three helpful accounts of focus groups and their use in education research proved particularly helpful (Keegan & Powney, 1987; Denscombe, 1995; Wilson, 1997) as they did provide details about how to manage the discussions. In addition, a practical guide for the conduct of focus group interviews provided me with detail information about almost every aspect of setting up the focus group to defining the definition and responsibilities of the facilitator (Krueger 2009). This was essential to this piece of work. As an experienced facilitator and presenter, I was comfortable working with groups. However, as the moderator in these groups it was imperative that I keep the conversations as focused as possible and that all questions were discussed and explored to their fullest potential. In other words, the success for collecting the data fell squarely on my shoulders. The use of the focus groups in my research proved to me that I needed to have excellent, listening skills,

organizational skills, and the ability to be personable and the ability to establish a level of comfort for all involved in the process if I wanted to maximize my data collection.

As I reviewed the video tapes and transcripts of the focus groups it became apparent to me that the dynamics of the group when designed correctly are invaluable. Participants provide significant amounts of rich data related to their experience with this professional development program. At times when the conversations seemed to be, waning a participant, would ask a question of a peer or make a statement about something they remembered for example the challenges associated with recruiting participant teachers for a training session and the whole group would agree and individuals would start to describe what they remembered about this as well. In these cases, the “group think” that is a double-edged sword in focus groups proved to be invaluable. The collective energy of the participants kept the conversations flowing smoothly and brought potential new and informative data to the discussion.

In many ways the participants in this, study and I have been on a similar journey. The paths we embarked on a little over ten years ago have been full of twists and turns. Each of us seeking our own understanding of who we were as learners, teachers, and individuals involved in a large corporate sponsored professional development program that impacted us in way we may still not fully understand. At times, the paths taken along this journey were filled with frustration and enlightenment and all participants may have used distinctly different routes.

Nonetheless, all parties seem to have been successful and met their goal of finishing what they started. Each of the eleven participants spoke about the impact the TBPDP brought to their practice, career and who they were as a learner. The same can be said for this researcher. Beyond meeting the requirements for this degree there was always the desire to

know more about myself, as a learner, educator, professional development provider and academic. The purpose of this study was to gain perspectives, clarification, and insight into the minds of these participants as they discussed what they remembered about a professional development activity that they took part in over several years almost a decade ago. This was an exciting and effective way to conduct research and gather data that each step of the way caused me to reflect on what I was learning through the voices of the participants and how that corresponded to my experiences, and the research.

The Road Ahead

I realize that as this journey from student to emerging researcher ends there is still a great deal I want to know. For example:

1. What was it about this professional development activity that kept them involved in it?
2. Can high quality and effective professional development build leaders in educational settings?
3. What role emotions play in professional development?
4. What is it that motivates an individual to be a lifelong learner?
5. How does a teacher use self-initiated professional development to address their own learning needs and the needs of their students during the course of their career?

REFERENCES

- Abbott, J. (1997). 21st century learning: Beyond schools, *Education Digest*, 63 (2).
- Albrecht, T. L., Johnson, G. M., & Walther, J. B. (1993). Understanding communication processes in focus groups. In D. L. Morgan (Ed.), *Successful focus groups: Advancing the state of the art* (pp. 51–64). Thousand Oaks, CA: Sage Publications, Inc.
- Allen, L., & Calhoun, E. (1998). *Schoolwide action research: Findings from six years of study*. Phi Delta Kappan, 79, 9:706-10.
- Apple, M. W. (1997). *Review of research in education*, Washington, DC: American Educational Research Association.
- Apple Computers, Inc. (1995). Changing the conversation about teaching, learning & technology—A report on 10 years of ACOT research. From <http://www.apple.com/education/k12/leadership/acot/pdf/10vr.pdf>.
- Bangert-Drowns, R. L., Kulik, J. K. & Kulik, C.—L.C. (1985). Effectiveness of computer-based education in secondary schools. *Journal of Computer-Based instruction*, 12 (3) 59-68.
- Barbour, R. (2007). *Doing focus groups*, Thousand Oaks: Sage Publications, Inc.
- Barnett, J. M. (2002). Focus Groups Tips for Beginners, Texas Center for the Advancement of Literacy & Learning, Occasional Research Paper No. 1., Retrieved from <http://www-tcall.tamu.edu/orp/orp1.htm> on 3/31/2012 12:42 pm.
- Barrera-Osorio, F., & Linden, L. L. (2009). The use and misuse of computers in education : Evidence from a Randomized Experiment in Colombia. World Bank Policy Research Working Paper Series. Retrieved December 28, 2010, from <http://ssrn.com/abstract=1344721>
- Barron, L., & Goldman, E.S. (1994). Integrating technology with teacher preparation. In B. Means (Ed.), *Technology and Education Reform*. San Francisco: Jossey-Bass.
- Becker, H. J. (1987). *The Impact of Computers Use on Children's Learning: What research has shown and what it has not*. Paper presented at the Annual Meeting of the American Educational Research Association, Washington, DC: (ERIC Document Reproduction Service No. ED 327 177)
- Becker, H.J. (1986). The effects of computer use on children's learning; Limitations of past research and a working model for new research. *Peabody Journal of Education*, 64 (1), 81-110.

Beer, M., Eisenstat, R. A., and Spector, B. (1990). Why change programs don't produce change. *Harvard Business Review* 68, 6: 158-66.

Behar, A. (2010) Limits of ICT in education. LiveMint.com. Dec. 16, 2010. Retrieved December 28, 2010, from <http://www.livemint.com/2010/12/15201000/Limits-of-ICT-in-education.html>.

Bialo, E. & Sivin, J. (1990). Report on the effectiveness of microcomputers in schools. Washington, D. C.: Software publishers Association. (ERIC Document Reproduction Service No. ED 327 177).

Bloor, M. (2001). *Focus group in social research*. London: Sage Publications, Inc.

Bromley, H., & Apple, M. (1998). *Education/Technology/Power, Educational computing as a social practice*, Albany, NY: State University of New York Press.

Borthwick, A., & Pierson, M. (2008). *Transforming classroom practice*, Professional development strategies in education technology, Eugene, OR: International Society for Technology in Education (ISTE).

Boyd, S. (1997). *Learning by bytes: Computers in the classroom*. Evaluation of the learning enhancement with information technology project. Wellington, New Zealand: New Zealand Council for Educational Research. (ERIC Document Reproduction Service No. ED 422 903).

Bracewell, R., & Laferriere, T. (1996). The Contribution of new technologies to learning and teaching in elementary and secondary schools. From <http://www.fse.ulaval.ca/fac/tact/fr/html/impactnt.html>.

Bracey, G. W. (1982). Computers in education: What the research shows. *Electronic Learning*, 2 (3), 51-54.

Bryk, A., Camburn, E., & Louis, K.S. (1999). Promoting school improvement through professional communities: An analysis of Chicago elementary schools. *Educational Administration Quarterly*, 35: 707-750.

Burgos, M. (1999). Interview with the Director of Generation www.V, II www4Teachers Webzine, 1999 South Central Regional Technology in Education Consortium, from <http://www.4teachers.org/keynotes/harper>.

Burk, J., & Littleton, P. (1995). Professional development: Reflective journals. *Mathematics Teaching in the Middle School*, 1, 7: 576-83.

- Camfield, J. (2006). What is the real cost of OLPC? Retrieved December 28, 2010, from http://www.olpcnews.com/sales_talk/price/the_real_cost_of_the.html.
- Camfield, J. (2010). Total cost of XO ownership for OLE Nepal. Retrieved Dec. 28, 2010, from http://www.olpcnews.com/sales_talk/price/total_cost_of_xo_ownership_for.html
- Cohen, D.K., & Ball, D. L. (1999). Instruction, capacity, and improvement (CPRE Research Report Series RR-43) Philadelphia, PA; Consortium for Policy Research in Education. From: <http://www.cpre.org/Publications/rr433.pdf>.
- Catterall, M., & MacLaran, P. (1998). Using computer software for the analysis of qualitative market research data. *Journal of the Market Research Society*, 40, 207-222.
- Cradler, J. (1995). Summary of current research and evaluation findings on technology in education. San Francisco, CA; Far West Laboratory. From <http://www.fwl.org/techpolicy/refind/html>.
- CORD. (2003). Teacher Professional Development: It's Not an Event, It's a Process. Waco, TX: Harwell, S. Foreword by Sandusky p. V.
- Creswell, J. W. (2003). Research design, qualitative, quantitative and mixed methods approaches (2nd Ed.), Thousand Oaks, CA: Sage Publications, Inc.
- Cuban, L. (1993). *How teachers taught: Constancy and change in American classrooms, 1880-1990* (2nd ed.). New York: Teachers College Press.
- Cuban, L. (1986). *Teachers and machines: The classroom use of technology since 1920*. Teachers College Press.
- Cuban, L. & Kirkpatrick, H. (1998). Computers make kids smarter—right? *Technos*, 7(2), 26-31.
- Cuban, L., Kirkpatrick, H., & Peck, C. (2001). High access and low use of technologies in high school classrooms: Explaining an apparent paradox. *American Educational Research Journal*, 38(4), 813-834.
- Culp, K. M., Martin, W., Gersick, A., Nudell, H., & Pederson, S. (2003). Key findings from year two of the EDC/CCT evaluation of Intel® Teach to the Future. New York: Education Development Center, Center for Children & Technology.
- Culp, K. M., Shankar, S., Gersick, A., & Pederson, S. (2001, December). Key findings from year one of the EDC/CCT evaluation of Intel® Teach to the Future. New York: Education Development Center, Center for Children & Technology.
- Cunningham, J.B. (1993). *Action Research and Organizational Development*. London: Praeger.

- Czarniawska, B. (2002). Narrative, interviews, and organizations. In J. F. Gubrium & J. A. Holstein (Eds.), *Handbook of interview research: Context and method* (pp. 733–749). Thousand Oaks, CA: Sage Publications, Inc.
- Darling-Hammond, L. (2006). *Powerful teacher education*, San Francisco: Jossey Bass.
- Darling-Hammond, L., LaPointe, M., Meyerson, D., Orr, M.T., & Cohen, C. (2007). *Preparing leaders for a changing world*. Palo Alto, CA: Stanford University, Stanford Educational Leadership Institute.
- Darling-Hammond, L., and M. W. McLaughlin. (1995). *Policies that support professional development in an era of reform*. *Phi Delta Kappan* 76, 8: 597-604.
- DeCoker, G. (2000, May). Keeping teaching fresh: Heads-up technology [electronic version]. *Educational Leadership*, 57. From <http://www.ascd.org/otb/el/2000/may/decocker.html>.
- Denzin, N.K, & Lincoln, Y.S. (1994). *Handbook of qualitative research*. London: Sage Publications, Inc.
- Desimone, L. M. (April 2009). Improving Impact Studies of Teachers' Professional Development: Toward Better Conceptualizations and Measures, *Educational Researcher*, 38 no 3 181-199. Doi: 10.3102/0013189X08331140
- Dwyer, D. (1994). Apple classrooms of tomorrow: What we're learned. *Educational Leadership*, 51(7), 4-10.
- Ertmer, P. A., Gopalakrishnan, S., & Ross, E. (2000). *VisionQuest: Helping teachers achieve technology integration*: Paper presented at the Annual Meeting of the Society for Information Technology & Teacher Education, San Diego, CA.
- Farkas, S., Johnson, J., & Duffet, A. (2003). *Stand by Me: What teachers really think about unions, merit pay and other professional matters*, New York: Public Agenda.
- Farren, C. (1999). A smart team makes the difference. *The Human Resource Professional*, (12)1, 12-16.
- Fox, L., Thompson, D., & Chan, C. (1996). Computers and curriculum integration in teacher education. *Action in teacher education*.
- Franklin, C. (2007). Factors that influence elementary teachers' use of computers. *Journal of Technology and Teacher Education*, 15, 267-293.

- Fraser, C., Kennedy, A., Reid, L., & Mckinney, S. (2007). Teachers continuing professional development: contested concepts, understanding and models. *Professional Development in Education* 33 (2): 153-169.
- Fullan, M. G., & Miles, M. B. (1993, April). *Getting educational reform right: What works and what doesn't*. Phi Delta Kappan.
- Fullan, M. (1982). *The Meaning of Educational Change*. New York: Teachers College Press.
- Gahan, C., & Hannibal, M. (1998). *Doing qualitative research using QSR NUD*IST*. London: Sage.
- Gee, J. (1999). *Discourse analysis*, New York, NY: Routledge.
- Gilster, P. (1995). *Digital literacy*, John Wiley & Sons.
- Glennan, T. K., & Melmed, A. (1996). Fostering the use of educational technology: Elements of a national strategy. Santa Monica, CA: RAND. From <http://www.rand.org/publications/MR/MR682/contents.html>.
- Glesne, C., & Peshkin, A. (1992). *Becoming qualitative researchers: An introduction*. New York: Longman.
- Gregory, A. (1999). Solving the team-building jigsaw. *Works Management*, 52, 56-59.
- Grossman, P. L., & Richert, A. E. (1988). Unacknowledged knowledge growth: A Re-examination of the effects of teacher education. *Teaching and Teacher Education*, 4(1), 53-62.
- Gubrium, J. F., & Holstein, J. A. (1997). *The new language of qualitative method*. New York, NY: Oxford University Press.
- Gubrium, J. F., & Holstein, J. A. (Eds.). (2002). *Handbook of interview research: Context and method*. Thousand Oaks, CA: Sage Publications, Inc.
- Guskey, T. R. (2000). *Evaluating p development*, Thousand Oaks, California: Corwin Press.
- Guskey, T. R., & Sparks, D. (1991). What to consider when evaluating staff development. *Educational Leadership*, 49 (3), 73-76.
- Hannafin, R. D., & Savenye, S. (1993). Technology in the classroom: The teacher's new role and resistance to it. *Education Technology*, 33, (6), 26-31.

- Hatch, J. A. (2002). *Doing qualitative research in educational settings*, State University of New York Press, Albany.
- Hatch, T. (2006). *Into the classroom: Developing the scholarship of teaching and learning*, San Francisco, CA: Jossey – Bass.
- Hayes, D. (2007). ICT and learning: lessons from Australian classrooms. *Computers & Education*, 49, 385-395.
- Heiner, R. T., & Trueblood, C. R. (1976), *Strategies for teaching children mathematics*, Addison Wesley (5107 He1).
- Heinich, R., Molenda, M., Russell, J. D., & Smaldino, S. E. (1999). *Instructional media and technologies for learning* (6th ed.) New Jersey: Prentice Hall.
- Hernandez-Ramos, P. (2005). If not here, where? Understanding Teachers' Use Of Technology In Silicon Valley Schools. *Journal of Research on Technology in Education*, (38)1, 39-64.
- Herr Gillespie, K. (2002). *A guide to faculty development*, Practical advice, examples, and resources, Bolton, MA: Anker Publishing Company, Inc.
- Higgins, J. W. (1998). Social Marketing and MARTIN: Tools for organizing, analyzing, and interpreting qualitative data. *Qualitative Health Research*, 8, 867-876.
- Hill, I., Palmer, A., Klein, A., Howell, E., & Pelletier, J. (2010). *Assessing the Train-the-Trainer Model: An Evaluation of the Data & Democracy II Project*, Retrieved from: <http://www.urban.org/uploadedpdf/412174-assessing-the-train.pdf>
- Holstein, J. A., & Gubrium, J. F. (1995). *The active interviewer*. Thousand Oaks, CA: Sage Publications, Inc.
- Howe, R., & Lewis, R. (1993). *A student guide to research in social science*. Cambridge: Cambridge University Press.
- Information Please Almanac. [Online] (1998). Retrieved January 8, 2011, from <http://www.infoplease.com/ipa/AO193911.html>.
- Institute of Computer Technology. (2000). *Intel ACE Project Applying Computers in Education. Teacher Training Curriculum Version 3.0 and Companion CD ROM*. San Jose, CA: Doherty, J., Candau, D., Kuni, P., Yost, J.
- Intel Teach to the Future with support from Microsoft. (2001). *Inservice 1.0 Curriculum Edition prepared by Institute of Computer Technology*. Sunnyvale, CA: Candau, D., Doherty, J., Hannafin, R., Judge, J., Yost, J., and Kuni, P.

- Ingvarson, L., Meiers, M., & Beavis, A. (2005, January 29). Factors affecting the impact of professional development programs on teachers' knowledge, practice, student outcomes & efficacy. *Education Policy Analysis Archives*, 13(10). Retrieved [4/4/12] from <http://epaa.asu.edu/epaa/v13n10/>.
- Ivers, K. S., & Barron, A. E. (1998). *Multimedia projects in education: Designing, producing, and assessing*. Englewood, CO: Libraries Unlimited.
- Jacobs, F. H. (1988). The five-tiered approach to evaluation: Context and implementation. In H. B. Weiss & F. H. Jacobs (Eds.), *Evaluating Family Programs*, (pp. 37–68). New York: Aldine de Gruyter.
- Jackson, R. (1999, March). Just in time: Web delivered professional development. *T.H.E. Journal*. From <http://www.thejournal.com/magazine/vault/A2102.cfm>.
- Jenlink, Patrick M. & Kinnucan-Welsch, Kathryn Case stories of facilitating professional development, *Teaching and teacher education*, Volume 17, Issue 6, August 2001, pp. 705-724.
- Johnson, D., & Johnson, R.T. (1987). *Learning together and alone*. NJ: Prentice-Hall.
- Jonassen, D. H. (2000). *Computers as mindtools for schools: Engaging critical thinking* (2nd ed.). New Jersey: Prentice Hall.
- Jonassen, D. H., Peck, K. L., & Wilson, B. G. (1999). *Learning with technology: A constructivist perspective*. New Jersey: Prentice Hall.
- Judson, E. (2006). How teachers integrate technology and their beliefs about learning: Is there a connection? *Journal of Technology & Teacher Education*, (14)3, 581-597.
- Joyce, B. & Calhoun, E. (1996). *Learning experiences in school renewal: An exploration of five successful programs*. Eugene, OR: ERIC Clearinghouse on Educational Management.
- Joyce, B. & Showers, B. (2002). Student achievement through professional development. In B. Joyce & B. Showers (Eds.), *Designing training and peer coaching: Our need for learning*. Alexandria, VA: ASCD.
- Kajder, S. (2003). *The tech-savvy English classroom*, Portland, ME: Stenhouse Publishers.
- King, K. P. (2002). *Keeping pace with technology* (Vol. 1). Cresskill, NJ: Hampton Press.
- King, M. B., & Newmann, F. M. (2000). Will teacher learning advance school goals? *Phi Delta Kappan*, 81(8), 576-580.

- Kirkpatrick, H., & Cuban, L. (1998). Should we be worried? What research says about gender differences in access, use, attitudes, and achievement with computers? *Educational Technology* (July-August, 1998), 56-61.
- Kitabchi, G. (1987). Evaluation of the Apple classroom of tomorrow. Paper presented at the Annual Meeting of the Mid-South Educational Research Association. Mobile, AL (ERIC Document Reproduction Service No. ED 295 600).
- Knapp, L. R., & Glenn, A. D. (1996). *Restructuring schools with technology*. Boston, MA: Allyn and Bacon.
- Knight, P. A., Systematic approach to professional development: Learning as practice, *Teaching and teacher education*, Volume 18, Issue 3, April 2002, pp 229-241.
- Knodel, J. (1993). The design and analysis of focus group studies: A practical approach. In D. L. Morgan (Ed.), *Successful focus groups: Advancing the state of the art* (pp. 35–50). Thousand Oaks, CA: Sage Publications, Inc.
- Kook, J. (1997). Computers and communication networks in educational settings in the twenty-first century: Preparation for educator's new roles. *Educational Technology*, 37, (2), 56-60.
- Krueger, R. A., & Casey, M. A. (2000). *Focus Groups: A practical guide for applied research* (3rd & 4th Ed.). Thousand Oaks, CA: Sage Publications, Inc.
- Krueger, R. A., King, J. A., Morgan, D. L. (1998). *Focus group kit*. Thousand Oaks, CA: Sage Publications, Inc.
- Krueger, R. A. (1998). *Analyzing and reporting focus group results: Focus group kit 6*. Thousand Oaks, CA: Sage Publications, Inc.
- Krueger, R. A. (1988). *Focus groups: A practical guide for applied research*. London: Sage Publications, Inc.
- Lemov, Doug. (2010) *Teach like a champion: 49 techniques that put students on the path to college*. Jossey-Bass.
- Leonard, D., & Swap, W. (2004, September). Deep smarts. *Harvard Business Review*.
- Levin, B.B. (2001). *Energizing teacher education and professional development with problem based learning*, Alexandria, VA: Association for Supervision and Curriculum Development (ASCD).
- Levitt, S. & Dubner, S. (2005). *Freakonomics*, New York, NY: HarperCollins.

- Lincoln, Y. S. & Guba, E. G (1985). *Naturalistic Inquiry*. Newbury Park, CA: Sage Publications, Inc.
- Linden, Leigh L. (2008) Complement or substitute? The effect of technology on student achievement in India. Jameel Poverty Action Lab Working Paper. Retrieved Jan. 4, 2011, from http://www.columbia.edu/~ll2240/Gyan_Shala_CAL_2008-05-22.pdf.
- Manouchehri, A., Enderson, M.C., Pagnucco, L.A., & Jiang, Z. (1997). Exploring the potential of technology in teacher education. In Judith Jacobs (Ed.), *Proceedings of the first Annual conference in Mathematics Teacher Education*.
- Martz, L. (1992). *Making schools better: How parents and teachers across the country are taking action – How you can, too*, New York, NY: Random House.
- Merriam, S. B., & Caffarella, R. S. (1999). *Learning in adulthood: A comprehension guide* (2nd Ed), San Francisco, CA: Jossey-Bass Inc.
- Merton, R.K., Fiske, M., & Kendall, P.L. (1990). *The focused interview: A manual of problems and procedures*. (2nd Ed.). London: Collier MacMillan.
- Morgan, D. L. (2001). Focus Group interviewing. In J. F. Gubrium & J. A. Holstein (Eds.), *Handbook of interview research: Context and Method* (pp. 141–160). Thousand Oaks, CA: Sage Publications, Inc.
- Morgan, D. L. (1997). *Focus groups as qualitative research* (2nd Ed.), Thousand Oaks, CA: Sage Publications, Inc.
- Morgan, D.L. (1988). *Focus groups as qualitative research*. London: Sage Publications, Inc.
- Morgan, D. L. & Kreuger, R. A. (1993). When to use focus groups and why. In D. L. Morgan (Ed.), *Successful focus groups: Advancing the state of the art* (pp. 3–19). Thousand Oaks, CA: Sage Publications, Inc.
- Morrison, G. S. (1997). *Teaching in America*, MA: Allyn & Bacon.
- Murray, C. (2008). *Real Education: Four simple truths for bringing America’s schools back to reality*, New York, NY: Crown Publishing Group.
- National Center for Educational Statistics (NCES). (2000, September). *Teachers' tools for the 21st century: A report on teachers' use of technology* [electronic version]. (NCES Publication No. 2000–102). Washington, DC: U.S. Department of Education. From <http://nces.ed.gov/pubs2000/2000102.pdf>

- National Center for Education Statistics (NCES). (1999). *Teacher quality: A report on the preparation and qualifications of public school teachers*. Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement.
- National Center for Education Statistics (NCES). (1999-2000). *Characteristics of Public School Teachers' Professional Development Activities: NCES 2005-030* (U.S. Department of Education, Institute of Educational Sciences, 2005). School and Staffing Survey.
- National Education Goals Panel. (1999). Goal 3: Student Achievement and Citizenship. From <http://www.negp.gov/page3-1.htm>.
- National Foundation for the Improvement of Education (1996).
- National Research Council. (2007). *Enhancing professional development for teachers: potential uses of information technology [report of a workshop: committee on enhancing professional development for teachers, national academies teacher advisory council, center for education]*. Washington, D.C: The National Academies Press.
- Neil, R. (1986). *Eleven traditional methods of in-service teacher education*. ERIC Document Reproduction Service No. ED 299 244)
- Nichols, L. (2002). Participatory program planning: Including program participants and evaluators. *Evaluation and Program Planning*, 25, 1–14.
- Norton, J. L. (1997). Locus of control and reflective thinking in pre-service teachers. *Education*, 117 (1), 401-411.
- Norton, P., Wiburg, K. (1998). *Teaching with technology*, Orlando, FL: Harcourt Brace & Company.
- Odden, A., Picus, L., Archibald, S., Goetz, M., Mangan, M.T., & Aportela, A. (2007). *Moving from good to great in Wisconsin: Funding schools adequately and doubling student performance*. Madison, WI: The Wisconsin School Finance Adequacy Initiative, Consortium for Policy Research in Education, Wisconsin Center for Education Research, University of Wisconsin-Madison.
- OECD (2010), *PISA 2009 Results: What makes a school successful? — Resources, Policies and Practices (Volume IV)*. Retrieved December 28, 2010, from <http://dx.doi.org/10.1787/9789264091559-en>.
- Oppenheimer, Todd. (2003) *The flickering Mind: Saving education from the false promise of Technology*. Random House.

- Papert, S. (1996). *The connected family: Bridging the digital generation gap*, Lonstreet Press.
- Patton, M. Q. (1987). *How to use qualitative methods in evaluation*. Thousand Oaks, CA: Sage Publications, Inc.
- Patton, M. Q. (1990/2002). *Qualitative research & evaluation methods* (2nd & 3rd Eds.). Thousand Oaks, CA: Sage Publications, Inc.
- Parnell, D. (2001). *Contextual teaching works!*, Waco, TX: CCI Publishing.
- Powney, J. (1998). Structured eavesdropping. *Research Intelligence, Journal of the British educational research foundation*, 28:10.
- Prouty, J. L., & McGrew, R. (1998). Show, don't tell! Preservice teachers get technical, [Online]. From <http://www.coe.uh.edu/insiteelec-pub/HTML1998/pt-prou.htm>.
- Richardson, V. (1994). The consideration of teachers' beliefs. In V. Richardson (Ed.), *Teacher change and the staff development process: A case in reading instruction* (pp. 90-105). New York: Teachers College Press.
- Richardson, V., & Placier, P. (2001). Teacher change. In V. Richardson (ed.), *Handbook of research on teaching*, 905-947. Washington D.C: American Educational Research Association.
- Riessman, C. K. (1993). *Narrative analysis*. Newbury Park, CA: Sage Publications, Inc.
- Roberts, L. M. (1995). Changing the conversation about teaching learning & technology – A report on 10 years of Apple Classrooms of Tomorrow (ACOT). Retrieved from: <http://imet.csus.edu/imet1/baeza/PDF%20Files/Upload/10yr.pdf>
- Roblyer, M.D., & Edwards, J. (2000). *Integrating educational technology into teaching* (2nd Ed.), Upper Saddle River, NJ: Prentice Hall, Inc.
- Rose, D.H., & Meyer, A. (2002). *Teaching every student in the digital age*, Alexandria, VA, Association for Supervision and Curriculum Development.
- Rothenberg, R. (2003, Spring). Thought leader. *Strategy + Business*. Retrieved from www.strategy-business.com/press/16635507/8458.
- Rubin, H. J., & Rubin, I. S. (2005). *Qualitative interviewing: The art of hearing data* (2nd Ed), Thousand Oaks, CA: Sage Publications, Inc.
- Salomon, G. (1994). *Interaction of media, cognition, and learning*, Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.

- Sandholtz, J. H., Ringstaff, C., & Dwyer, D. C. (1997). *Teaching with technology: Creating student-centered classrooms*. NY: Teachers College Columbia University Press. (ERIC Document Reproduction Service No. ED 402 923)
- Santiago, A., Severin, E., Cristia, J., Ibararán, P., Thompson, J., & Cueto, S. (2010). Evaluación experimental del programa “Una Laptop por Niño” en Perú. Washington, DC: Banco Interamericano de Desarrollo. <http://www.iadb.org/document.cfm?id=35370099>
- Sapon-Shevin, M., & Schniedewind, N. (1992). If cooperative learning's the answer, What are the questions? *Journal of Education*, 174 (2).
- Schmidt, D., Merkley, D., Strong, M., & Thompson, A. (1994). An approach to technology integration for reading/language arts teacher education faculty. In J. Willis, B. Robin & D.A. Willis, (Eds.), *Technology and Teacher Education Annual*, 773-778. Charlottesville, VA: Association for the Advancement of Computing in Education.
- Schussler, D., Poole, I., Whitlock, T., & Evertson, C. (2007). Layers and links: Learning to juggle 'one more thing' in the classroom. *Teaching and Teacher Education*, 23, 572-585.
- Seidman, S. & Alexander, J., (2001). *The new social theory reader*, New York, NY: Routledge.
- Shagoury Hubbard, R., & Miller Power, B. (1993). *The art of classroom inquiry: A handbook for teacher-researchers*. NH: Heinemann Educational Books, Inc.
- Slavin, R. (1987). Cooperative learning and the cooperative school. *Educational Leadership*.
- Smithson, J. (2000). Using and analyzing focus groups: Limitations and possibilities. *International Journal of Social Research Methodology*, 3, 103–119.
- Sparks, D. (2002). *Designing powerful professional development for teachers and principals*. Oxford, Ohio: National Staff Development Council.
- Sparks, D. (1994). A paradigm shift in staff development. *Journal of Staff Development*, 15 (4), 26-29.
- Sparks, D., & Loucks-Horsley, S. (1989). Five models of staff development for teachers. *Journal of Staff Development*, 10 (4), 40-57.
- Stewart, D. W., & Shamdasani, P.N. (1990). *Focus groups: Theory and practice*. London: Sage Publications, Inc.
- Stronge, J., & Tucker, P. (2003). *Teacher evaluation assessing and improving performance*, Larchmont, NY: Eye On Education.

- Suppes, P. (1966) The uses of computers in education. *Scientific American*, 215(3):207-220.
- Tapscott, D. (1998). *Growing up digital: The rise of the net generation*, McGraw Hill.
- Taylor, W.C., & LaBarre, P. (2006, January 29). How Pixar adds a new school of thought to Disney. *The New York Times*. Retrieved from: www.nytimes.com/2006/01/29/business/yourmoney/29pixar.html?pagewanted=all.
- Thomas, L., Larson, A., Clift, R., & Levin, J. (1996). Integrating technology in teacher education programs: Lessons from the teaching apprenticeship project. *Action in Teacher Education*, 17(4), 1-8.
- Tierney, R.J. (1989). Student thinking processes: The influence of immediate computer access on students' thinking. First- and second-year findings. ACOT report #3. Cupertino, CA: Apple Computer, Inc. (ERIC Document Reproduction Service No. ED 316 201).
- Tomei, L.A. (2002). *The technology façade: Overcoming barriers to effective instructional Technology*, Boston, MA: Allyn & Bacon.
- Toyama, Kentaro. (2010) Can Technology end poverty? *Boston Review*, 35(6):12-18,28-29. http://bostonreview.net/BR35.6/ndf_technology.php, retrieved Jan. 4, 2011.
- Tyack, D. & Cuban, L. (1995). *Tinkering toward Utopia: A century of public school reform*, Cambridge, MA: Harvard University Press.
- Vital Wave Consulting. (2008) Affordable computing for schools in developing countries: A total cost of ownership (TCO) model for education officials. Retrieved December 28, 2010, from <http://www.vitalwaveconsulting.com/insights/articles/affordable-computing.htm>.
- Warschauer, M., Knobel, M., & Stone, L. (2004). Technology and equity in schooling: Deconstructing the digital divide. *Educational Policy*, 18(4):562-588. Retrieved January 4, 2011, from http://www.gse.uci.edu/person/warschauer_m/docs/tes.pdf.
- Warschauer, M. (2006) *Laptops and literacy: learning in the wireless classroom*. Teachers College Press.
- West, P. (1990, May 9). Teachers' computer skills self-taught, not a result of training, survey finds. *Education Week*. From <http://www.edweek.org/ew/ewstory.cfm?slug=09390010.h09&>
- Wiggins, G., & McTighe, J. (1998). *Understanding by design*. Alexandria, VA: Association for Supervision and Curriculum Development.

- Wiggins, G., & McTighe, J. (1998). *Understanding by design*. Association for Supervision and Curriculum Development. VA: Alexandria.
- Wildmer, C., & Amburgey, V. (1994). Meeting technology guidelines for teacher preparation. *Journal of Computing in Teacher Education*, 10 (2), 12-17.
- Wilhelm, J. D., Friedemann, P. D., & Erickson, J. (1998). *Hyperlearning: Where projects, inquiry and technology meet*. ME: Stenhouse Publishers.
- Williams, C.J., & Brown, S.W. (1991) A review of the research issues in the use of computer-related technologies for instruction: An agenda for research. *Educational Media and Technology Yearbook*, 17, 26-46.
- Wozney, L., Venkatesh, V., & Abrami, P. (2006). Implementing computer technologies: Teachers' perceptions and practices. *Journal of Technology and Teacher Education*, 14, 173-207.
- Vygotsky, L. (1986). *Thought and language*. Cambridge, MA: MIT Press.
- Zemelman, S., Daniels, H., & Hyde, A. (2005). *Best practice today's standards for teaching & learning in America's schools* (3rd Ed), Portsmouth, NH: Heinemann.

Appendix

Data Coding Text And Example

What follows is an example of the how each participant's transcript was coded using the following research questions as guides to develop unit ideas and themes.

What do a group of Teachers who participated in a high quality professional development initiative New Mexico:

- a) Remember about their experiences in the program?
- b) Perceive as changes in their practice that resulted from their participation?
- c) Understand about their own professional growth ten years after their initial involvement in this workshop?

Appendix 1

Example Excerpt From A Participant:

Participant 7: [I remember it being a challenge. (Question-1) (Unit-Remembrance) (Theme-Challenges)] By the end of the day, you were [just barely alive because you were learning so much (Question-1) (Unit- Remembrance) [Theme-Learning]. But [I think something that I use the most, as a teacher, was the importance of looking ahead with your assessments (Question-2) (Unit-Practice) (Theme-Change)], how were you going to evaluate the kids. And [always have rubric ready to go before and handing that out before you presented anything. (Question-2) (Unit-Practice) (Theme-Change] That was something that really [changed my teaching and made me a better teacher (Question-2) (Unit-Practice) (Theme-Change)]. I truly think [the program changed and made us better teachers (Question-2) (Unit-Practice) (Theme-Change)].

Participant 7: I think [the resources were just phenomenal (Question-1) (Unit-Remembrance) (Theme- Resources)]. To have all the websites,[everything you needed was right there in that book(Question-1) (Unit-Remembrance) (Theme-Resources)]. It's hard and it takes a lot of time to go through and find all the websites and all that. I think all [the resources themselves were just phenomenal (Question-1) (Unit-Remembrance) (Theme-Resources)].