A Practical Guide for Students and Faculty in CPED-Influenced Programs Working on an Action Research Dissertation in Practice

A product created for CPED by

Ray R. Buss, Mary Lou Fulton Teachers College, Arizona State University

and

Debby Zambo, Associate Director, Carnegie Project on the Education Doctorate & Professor Emerita Mary Lou Fulton Teachers College, Arizona State University
# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Introduction</strong></td>
<td></td>
</tr>
<tr>
<td>Definitions and the Benefits of Action Research</td>
<td>2</td>
</tr>
<tr>
<td>Finding and Defining a Problem of Practice Worth Studying</td>
<td>4</td>
</tr>
<tr>
<td>Writing Research Questions</td>
<td>5</td>
</tr>
<tr>
<td><strong>Chapter 1: Leadership Context and Purpose of the Action</strong></td>
<td></td>
</tr>
<tr>
<td>National Context</td>
<td>12</td>
</tr>
<tr>
<td>Personal Context</td>
<td>13</td>
</tr>
<tr>
<td>Situational Context</td>
<td>14</td>
</tr>
<tr>
<td>Closing Thoughts on Chapter 1</td>
<td>17</td>
</tr>
<tr>
<td><strong>Chapter 2: Review of Supporting Scholarship</strong></td>
<td></td>
</tr>
<tr>
<td>Using Literature in Practitioner Inquiry and Action Research Dissertations</td>
<td>19</td>
</tr>
<tr>
<td>Introductions</td>
<td>21</td>
</tr>
<tr>
<td>Tradition/Stance</td>
<td>26</td>
</tr>
<tr>
<td>Methodology in the Literature Review</td>
<td>27</td>
</tr>
<tr>
<td>Theoretical Frames</td>
<td>28</td>
</tr>
<tr>
<td>Closing Thoughts on Chapter 2</td>
<td>35</td>
</tr>
<tr>
<td><strong>Chapter 3: Action and Method</strong></td>
<td></td>
</tr>
<tr>
<td>The Study’s Setting and Participants</td>
<td>37</td>
</tr>
<tr>
<td>Describing the Action/Innovation</td>
<td>40</td>
</tr>
<tr>
<td>Instruments and Data Collection Procedures</td>
<td>45</td>
</tr>
<tr>
<td>Data Analysis</td>
<td>52</td>
</tr>
<tr>
<td>Threats to Reliability and Validity</td>
<td>54</td>
</tr>
<tr>
<td>Closing Thoughts on Chapter 3</td>
<td>54</td>
</tr>
<tr>
<td><strong>Chapter 4: Analysis and Results/Findings</strong></td>
<td></td>
</tr>
<tr>
<td>Introducing the Analysis</td>
<td>55</td>
</tr>
<tr>
<td>Explaining the Reliability of the Quantitative Measures</td>
<td>56</td>
</tr>
<tr>
<td>Reporting Data Analysis Procedures and Results for Quantitative Data</td>
<td>59</td>
</tr>
<tr>
<td>Reporting Data Analysis Procedures for Qualitative Data</td>
<td>60</td>
</tr>
<tr>
<td>Reporting Results for Qualitative Data</td>
<td>65</td>
</tr>
<tr>
<td>Several Important Matters about Reporting Qualitative Data</td>
<td>65</td>
</tr>
<tr>
<td>Closing Thoughts on Chapter 4</td>
<td>65</td>
</tr>
<tr>
<td><strong>Chapter 5: Discussion</strong></td>
<td></td>
</tr>
<tr>
<td>Discussion of the Complementarity of the Quantitative and Qualitative Data</td>
<td>66</td>
</tr>
<tr>
<td>Discussion of Results in Relation to the Extant Literature or Theories</td>
<td>67</td>
</tr>
<tr>
<td>Discussion of Personal Lessons Learned</td>
<td>69</td>
</tr>
<tr>
<td>Discussion of Lessons Learned about Implementation of the Action</td>
<td>70</td>
</tr>
<tr>
<td>Discussion of the Limitations</td>
<td>72</td>
</tr>
<tr>
<td>Discussion of Implications for Practice</td>
<td>74</td>
</tr>
<tr>
<td>Discussion of Implications for Research</td>
<td>76</td>
</tr>
<tr>
<td>Conclusion or “Closing Thoughts” (optional)</td>
<td>76</td>
</tr>
<tr>
<td>Closing Thoughts on Chapter 5</td>
<td>78</td>
</tr>
<tr>
<td>References</td>
<td>80</td>
</tr>
</tbody>
</table>
A Practical Guide for Students Writing Action Research Dissertations in CPED-Influenced Programs

A professional doctoral degree should represent preparation for the potential transformation of a field of professional practice, just as a PhD represents preparation for the potential transformation of basic knowledge in a discipline.

(Council of Graduate Schools, 2007, p. 6)

This guide is written for students in CPED-influenced programs who are planning to write, or are in the process of writing, action research dissertations. This guide is also written for faculty mentors. It is meant to support the teaching and mentoring of students writing action research dissertations. In other words, the guide is complex and faculty may need to scaffold and support students. A good mentor who understands the challenges and rewards of action research is vital.

Action research is different from more investigative types of research because it is action oriented and has a particular philosophy. Given this, it is important for students and mentors to understand that writing an action research dissertation, while working full time, can be challenging. Being an insider conducting research on his/her own practice requires reflection, leadership, and research capabilities. So before we begin articulating specific ideas for writing an action research dissertation we want to make sure students have made the right choice. Let’s start with the definition of a dissertation. According to the Oxford English Dictionary a dissertation is a formal, comprehensive discourse on a topic, either written or spoken. To distinguish the EdD from the PhD, members of CPED have developed their own description of a practitioner-oriented dissertation, or what they call a Dissertation in Practice. CPED defines a Dissertation in Practice as the culminating experience that demonstrates a scholarly practitioner’s ability to solve a problem of practice, or “to think, to perform, and to act with integrity” (Shulman, 2005).

An action research dissertation combines both of these ideas. It is a scholarly written discourse on a problem of practice contextualized where the student has intimate knowledge, responsibility, and interest. Action research dissertations develop scholarly practitioners, individuals capable of blending their practical wisdom with their professional skills and knowledge to name, frame, and solve the problems of practice they are facing. They also align with CPED’s (2009) second principle (Prepares leaders who can construct and apply knowledge to make a positive difference in the lives of individuals, families, organizations, and communities). Action research dissertations are typically composed of these five chapters:

- Chapter 1: Leadership Context and Purpose of the Action
- Chapter 2: Review of Supporting Scholarship
- Chapter 3: Action and Method
- Chapter 4: Analysis and Results/Findings
- Chapter 5: Discussion

Given the importance of each chapter we have written this guide chapter by chapter. We have also asked and received permission from a few of our graduates to use parts of their dissertations as examples. In this guide our explanations are typed in black and the dissertation work of students is typed in blue. Yellow sticky notes are added to student’s text to provide commentaries, or lessons we have learned as mentors. However, please be aware that when
students’ work is used we do not provide the references they cite. We do however provide citations in our explanations so students and faculty may find them if they are interested.

As noted, in its definition the dissertation is typically a formality in graduate schools. To receive an EdD most students must write and orally defend a dissertation. However, just as important as the document and, formalities that surrounding it, are the opportunities and changes it brings to the writer. Action research dissertations encourage students to take action and, in the process, develop into leaders and agents of change. However, before we begin talking about these changes we must first note that we do not pose an action research dissertation is the one or only type of dissertation a doctoral student might write. Even though we have been using action research in our program for many years, we recognize the importance of variability. Each institution and environment is unique. An action research dissertation is appropriate for a doctoral student, like you, if your institution’s guidelines accept it as legitimate dissertation work and if you:

• have a problem of practice that multiple stakeholders and you perceive to be significant and worthy of investigation;
• have a sphere of influence (a setting in which you have responsibility, authority and intimate contextual knowledge);
• are willing to take risks and systematically and methodically inquire into your own practice or, in CPED’s terms, use various research, theories, and professional wisdom to design innovative solutions to problems within your own context;
• are willing to work as a participant observer;
• believe in the philosophy and goals of action research (are interested in building local theory and as opposed to filling gaps in the knowledge base of a scholarly discipline);
• understand that your findings may generate local theory but cannot be generalized beyond your context;
• are willing to share your findings with varied and multiple stakeholders; and
• have a committee who understands action research dissertations.

If your beliefs and context align with the above, then an action research dissertation is a viable option for you and, it is a good one. Many practitioners and researchers have found action research to be a suitable strategy for both dissertation and leadership development (Andrews & Grogan, 2005; Furman, 2011; Grogan, Donaldson, & Simmons, 2007; Herr & Anderson, 2005). In our experience, we have found that action research develops what CPED (2010) calls scholarly practitioners (see earlier definition). Scholarly practitioners use practical research and applied theories (like the ones you will see used in our examples) as tools for change and improvement. Scholarly practitioners understand the importance of equity and social justice and they collaborate with key stakeholders to achieve ideals. From our experience we have seen action research change students’ leadership capabilities and identities. Through action research you can gain the mind, hands, and hearts necessary to make a difference in your local contexts (Buss, Zambo, Zambo, & Williams, 2014; Shulman, Golde, Bueschel, & Garabedian, 2006)
Definitions and the Benefits of Action Research

Earlier we provided a simple definition of action research but there are many others and to be fair and help you understand them we provide a few of the more popular ones below:

- Action research is any systematic inquiry conducted by teacher researchers, principals, counselors or other stakeholders to understand how their schools operate, how they teach, and how well their students learn. Educators perform action research for themselves (Mills, 2013).
- Action research focuses on change, uses reflection, encourages participation, builds community, promotes inclusion, and aims for understanding through repetition and practice (Stringer, 2007).
- Action research is a disciplined process of inquiry conducted by and for those taking action. The primary reason for engaging in action research is to assist the “actor” in improving his or her actions. It involves selecting a focus, clarifying theories, identifying research questions, collecting and analyzing data, reporting results, and taking informed next steps (Sagor, 2000).
- Action research is collective inquiry, undertaken by participants in social situations to improve the rationality and justice of their own practices. Action research is performed in a cyclical spiral that includes: developing a plan aimed at a problem, acting to implement that plan, observing the effects of one’s actions, and reflecting on what was done for further planning. Action research encourages its users to question the relationship between the actual and the possible (Kemmis & Wilkson, 1998).
- Herr and Anderson (2005) pose action research to be the use of sound and appropriate methodology, the generation of new knowledge, and the education of both the researcher and the researched.

Although different on the surface, each of these definitions contains a consistent theme. Action research requires a researcher to work with others to develop a deep understanding of a problem, implement an appropriate action, systematically investigate the effects of that action, and decide on next steps. The thing that distinguishes action research from other research paradigms is its cyclical and collaborative nature (Barnett & Muth, 2008). Action research can be a way for you to bring your problem solving abilities (professional knowledge), leadership skills, and what you are learning in your coursework (theory and research) together. The benefits of writing an action research dissertation are many and as working professionals seeking a doctorate it has much to offer. Earlier we noted that we have seen increased leadership capabilities. A few more benefits include the opportunity to:

- focus on a small-scale action that can be completed in conjunction with your full-time work; yet, substantial enough to affect both you and the participants in your study;
- use scholarship (what you are learning) to enrich and expand your professional knowledge or develop a scholarly disposition;
• examine literature in a comprehensive but targeted and selective manner;
• focus on your local context - random assignment to treatments, control groups, and inferential statistics generally are not necessary because action research is not concerned with generalizability, universal principles, or hypothesis testing;
• utilize the resources available – resources needed should not exceed what is normally available to you in your workplace setting; and
• learn and develop your research capabilities through an iterative process (cycles of action research).

Although these benefits may make action research seem less rigorous than other types of research, it is not. Action research requires courage and leadership capabilities. Furman’s work (2011; 2012) with educational leaders shows that action research’s focus on equity, collaboration, and data-based decision-making helps leaders develop and grow. Now that you understand action research and its benefits let’s look at where to begin.

**Finding and Defining a Problem of Practice Worth Studying**

*Every teacher and administrator who undertakes an action research project starts at the same place: making explicit a question or problem to investigate, or defining an area of focus (Mills, 2013).*

CPED-influenced programs place problems of practice at the center of their programs. They are part of their vision and mission statement and discussed in research and leadership courses. Perhaps more importantly, CPED strives to help programs break the “PhD lite” notion (Shulman, et al., 2006). They are working to reframe the EdD as a professional degree aimed at addressing problems of practice.

In a similar vein, EdD students perform action research on problems in their own contexts, or spheres of influence, that is a setting in which they have responsibility, authority and intimate contextual knowledge. This idea aligns with CPED’s (2010) concept of a *Laboratory of Practice*, because it is a setting where scholarly practitioners act and lead and blend theory and practice. In *Laboratories of Practice* students like you have the opportunity to develop scholarly expertise. Given their real-world setting, it is important to clearly understand what a problem of practice is, make sure the one you select is appropriate for a dissertation (or cycles leading up to it), and ensure the right questions are asked about it. Focusing on an inappropriate problem or asking the wrong questions will be a waste of resources not to mention adding time to your graduation date (Hochbein & Carpenter, 2011). So, what is a problem of practice?

A problem of practice is, caused by a condition that makes you unhappy because it is unjust, causing individuals to feel disenfranchised, or wasting time and resources. Sands, et al., (2013) note that a problem of practice is any situation in which efforts are not being actualized. Problems can come from inside or outside of a school or organization. Herr and Anderson (2005) note that outside influences like standards, assessments, and policies can, without intention, lead to interesting problems. In CPED (2010) terms a *problem of practice* is a persistent, contextualized, and specific issue embedded in the work of a professional practitioner. Further,
when the practitioner addresses the problem there is potential to improve understanding, experience, and outcomes associated with the matter. The key words here are persistent, contextualized, and improvement because they capture the heart of a problem of practice and align with the philosophy of action research. Action research is performed by or with insiders who want to make improvements and challenge the status quo (Herr & Anderson, 2005).

Researching a problem of practice aimed at improving the lives of individuals, families, organizations, and communities develops scholarly practitioners and aligns with CPED’s second principle (Prepares leaders who can construct and apply knowledge to make a positive difference in the lives of individuals, families, organizations, and communities). We have found that when students collaborate to make things better and see changes in their contexts they remain motivated throughout graduate school, especially at the dissertation phase. So make sure the problem you choose is within your sphere of influence, something about which you and your constituents are passionate and can manage, and something that will lead to positive change. As a scholarly practitioner you do not need to conduct research to develop theory for theory’s sake. Research is not helpful unless it is accessible to, and informs the work of, those who need it; it is aimed at the common good; and based on collaboration (Ball, 2012). Reason and Marshall captured this idea when they stated that action researchers do research for (not on) their constituents and for themselves. Action researchers are intimate with the problems they choose. Barnett and Muth (2008) note action researchers should conduct their efforts to improve practice. Carr and Kemmis (1986) suggest four ideas one might consider when trying to improve and research one’s own practice. One can:

• investigate theory as it applies to practice;
• investigate the moral/ethical dimensions of practice;
• build theory from practice; and
• examine practice from a critical lens.

If you choose to conduct action research on how theory applies to practice you would investigate the usefulness of theory within your local context. This is important because theory is sometimes developed devoid of real-word settings. It can sound really good; but, it may be useless when tried in educational contexts. In other words, theory needs to be tested (and challenged) by practitioners like you.

If you choose to investigate practice through a moral and ethical lens, your work will focus on uncovering hidden assumptions and behaviors that influence individuals. This is not easy. It will require you to be open and listen carefully to the individuals around you and speak up for them if they are oppressed. In terms of action research this is a participatory stance because it has the following characteristics:

• the focus is on a vision of social events as contextualized by macro-level forces;
• social processes and repressions come to be understood through their historical contexts;
• theory and practice are conjoined;
• subject-object (researcher-researched) relationships are equalized and transformed through dialogue;
• the community and researcher perform critical actions aimed at social transformations; and
• research results are immediately applied (de Shutter & Yeppo, 1981).
If you choose to build theory from practice you will need a solid understanding of theory and the ways data can explain or refute it. Building theory from practice comes from a solid understanding of your context. If you take a critical look at practice, you will become more reflective and understand what needs to change.

Others have found similar, yet slightly different ideas about what to study. For example, Ball (2012) mentions three criteria worthwhile for scholarship. Scholarship should be:

- generative - performed for the public good
- open to critical review
- shared (made public) in an understandable form
- transparent so others can use and build on what has been learned

Hochbein and Perry (2013) note that there are two kinds of problems of practice: unique and universal. Unique problems are context specific and often used as teachable moments. To solve these types problems students need grounding in practice, as it is likely there will be little or no research literature to use. Professors often pose unique problems when they provide simulations or cases to analyze. Learning opportunities like these encourage discourse and allow experiential knowledge to be applied without real-world pressures or challenges.

In contrast, universal problems are broader (more people have them) and have been investigated. These problems have a robust scholarly base and solving them requires understanding, application, and engagement of the research literature. Universal problems require students to decipher and debate the literature to design plausible solutions.

Beltzer and Ryan (2013) have a similar idea and note that students in EdD programs ask three kinds of research questions. Those that evaluate a policy or initiative already in place, those that ask what happens if I implement...to solve...and improve..., and those that seek to describe current conditions so they can generate appropriate and contextualized solutions (What is going on here?).

As a doctoral student, it is likely you have encountered various types of problems in your practice and this is good because action research requires experiential knowledge. Calhoun, (2002), Creswell (2009) and Sagor (2009) note that when educators perform action research they consider:

- what is troubling in their practice;
- what is within their control (their sphere of influence);
- how they can balance their own passions with the needs of others; and
- the literature (ideas that will make things better).

Mills (2013) poses seven questions an action researcher can ask her/himself:

- What challenges me?
- What keeps me up at night?
- What is the most important issue I have at my job?
- What am I curious about?
- How would I like to change?
• What are the changes I would be most proud of?
• If I could be more of an expert in one area, what would that area be?

Each of these questions can lead to problem naming. Kemmis and McTaggart (2000) articulate that action researchers find researchable questions by examining:
• theories that influence their practice;
• their actions;
• the values they hold;
• how their ideas fit into the larger picture – the common good; and
• how things got to be the way they are (the historical context).

Writing about the professional practice dissertation, Willis, Inman, and Valenti (2010) offer six suggestions for choosing a problem:
• focus on a problem that interests you and others;
• focus on a problem that is original;
• select a problem that is worth your time and effort and the time of others;
• choose a problem that will pass the resume test – move your name up for advancement; and
• consider format and problem match – Can the problem fit and fill a 5-chapter dissertation?

In a similar vein, Herr and Anderson note that the focus of action research often come from insiders. Insider questions help researchers work to do things better rather than doing more of the same. Implied in all of these ideas is the notion that the problem a researcher focuses on should develop their leadership capabilities. This is not easy and can be uncomfortable because predetermined assumptions and ways of behaving are easy to use (Bransford, Vye, Stipek, Gomez, & Lam, 2009). Being open and attuned to a problem of practice can be challenging.

Fulton, Kuit, Sanders, and Smith (2013) remark that problems of practice chosen as research topics should be reasoned and pass the “so what test.” Improving them should make things better. This means that the problem you choose should be beneficial to others and to yourself and at the same time, it should be narrow enough to be completed within the time frame you have as a doctoral student. In other words, your problem should be SMART:

Specific;
Measureable;
Attainable in the timeframe;
Relevant to you, your employer, and your community of practice; and
Timely, that is current and worthy.

To these we would add that the problem should challenge and transform both you and the status quo that exists in your context.

Action research is collaborative and what others think should also matter. So what types of studies matter to others working in schools and organizations? Sands, et al., (2013) investigated this question by asking a group of critical friend leaders working in executive leadership positions in school districts, institutions of higher education, and education-related community-based
organizations what they thought. Their data show that these individuals thought the most beneficial studies: (a) were systemic and coordinated rather than piecemeal, (b) demonstrated an understanding of the processes within the control of the institution, (c) took into account the political and organizational realities inside and outside of an institution, and (d) were informed with data that were understandable and able to be shared with multiple individuals in the organization.

Even with ideas like these finding the right problem of practice and understanding its complexities is not always easy. Individuals like Schon (1983) remind us of the complexity of real world problems. In his words,

In real-world practice, problems do not present themselves to the practitioner as givens. They must be constructed from the materials of problematic situations, which are puzzling, troubling, and uncertain. In order to convert a problematic situation to a problem, a practitioner must...make sense of an uncertain situation that initially makes no sense. (p. 40)

Along the same lines, Archbald (2008) makes us aware that problems of practice are multifaceted, complex, and often ill-structured, that is, they have no certain causes or solutions. This is an important point because action research with its iterative, cyclical approach to solving a problem is a good way to think about tackling a complex problem. In most instances, it is better to think of improvement cycles rather than drastic changes.

This idea aligns with improvement science, a field formerly used in medicine, business, and other fields. In this guide we will not go into all of the specifics of improvement science but if you are interested in it we suggest you read Bryk, Gomez and Gunrow’s (2011) work Getting ideas into action: Building networked improvement communities in education. We bring up the idea of improvement science because it has a powerful tool called a fishbone diagram that can be used to define a problem of practice and understand its complexity from a systems perspective. We mention fishbone diagrams because we have used them with students to clarify and narrow their dissertation problems.

To begin to create a fishbone diagram create a sheet like the one above. Then follow these steps:

1. Write the problem under investigation in the box at the head of the fish.
2. Identify major categories that are logically associated with the problem and write them in the boxes in the diagram. The diagram has five “ribs” and boxes, but more or fewer boxes can be used depending upon the categories. Remember to look for root causes that are under the agency/program and or center’s control.
3. For each category, brainstorm possible causes of the problem related to that category. Keep asking “Why does this happen?” (at least 5 times) or ask:
   - What is happening to cause [place the perceived problem here]?
• Why might this be occurring?
• Who is being affected?
• What else might be contributing?
• When is this happening and why is it happening then?

Record the possible causes next to the appropriate “rib” in the diagram. Repeat this process for each of the categories.

4. When you have your fishbone created analyze each possible cause to determine whether it is a root cause by asking:
   • Would the problem have occurred if this cause had not been present?
   • Would the problem reoccur if the cause were corrected?

If the answer to these questions is no, you have found a likely root cause. Place a check mark next to each idea that is not a root cause and circle each idea that is a likely root cause of the problem.

A fishbone diagram graphically displays a problem and its causes. Understanding causes help an action researcher decide on actions to take.

Finding a researchable problem is not easy and will take time. If your program affords time we encourage you to do cycles of action research before you get to your dissertation. Performing multiple cycles will help you hone your leadership and research capabilities. Not to mention develop valid tools and procedures. Becoming a scholarly practitioner takes time and effort. This quote by Reason and Bradbury (2006) is a nice summary of these ideas:

The motivation to research may arise from external commitments in students’ lives; they are committed to work with issues of race or gender, to manage in ways that are collaborative and inquiring, and to address the crises of ecological sustainability. Often they know intuitively or tacitly what they want to research, but their definition of the project is typically too loose, too formal, too presented for outside consumption to really take off. The project needs to touch the heart in some way if it to sustain them (p. 451).

Writing Research Questions

Be passionate and work smart so your research will make a difference and keep you motivated. So once you have articulated your problem begin to draft your research questions (Reason & Marshall, 2006). A good frame to use is:

If I try [insert the action to be taken] how will it affect [insert the individuals here]. Will the problem change from its current state to [describe one or more possible consequences of the action]?

This structure is a way to begin formulating questions, but articulating a clear, researchable question often takes several iterations. Consider this question: If I listen to my students, will I be able to better understand them and their needs? This question suggests an action (listening), an action taker (the researcher) and possible outcome (better understanding); but it is vague in both in the description of the action (what type of understanding?) and in the possible outcome (what are students’ specific needs?).
Now consider:

*If I set up community circle time to listen to students describe their learning experiences (the action), in what ways, if any, will the information about their learning processes lead to changes in my teaching practices (what will be affected and the outcome that will be studied).*

In the second question it is clear what the researcher intends to do, how she will know it is successful, and what a possible outcome might be. In listening to students, the researcher might discover information that will lead directly to an exploration of an instructional design process or might refocus the overall goal to one that was not apparent when the inquiry began. Of course, just as important as writing good questions, is recognizing those that are weak. These include:

**Questions with known answers.** Suppose a school has been holding family literacy nights for several years and because of this, parents are coming into classrooms to listen to students read. A weak question for action research would be: Will holding a family literacy night increase parent participation? This might be a useful evaluative research question where a controlled study could be set up to explore the correlation between those attending and those not attending. But evaluative research is different than action research. Action research includes a trial in designing something new, and involves implementing an action and studying its consequences, not just studying what is already there and working.

**Questions that can be answered with a yes or no.** Generally yes/no questions tell very little as they do not encourage a researcher to pay attention to the nuances of the context or the social interactions involved. This is not to say yes/no questions provide no insight. Some can and do provide direction, however to have a meaningful project it is better to consider ways to transform these questions into a different format. For example the yes/no question: *Will the introduction of project-based learning lead to more student engagement?* Could be reworded to, *How and to what extent will introducing project-based learning affect student engagement in my community-college classroom, which is full of students who dislike social studies?* This question is much better because it encourages the researcher to look for the possible mechanisms of project-based learning (maybe ownership, collaboration, or self-assessment) that increase engagement and learning.

**Questions that can be answered by reading the literature.** *What does community of practice mean?* This question begs for more reading about what is already known. So even if a researcher is interested in the question, it has nothing to do with his/her context or an action. A better question for action research might be: *How and to what extent will increasing the time for teacher collaboration in grade level teams affect the development of a community of practice at our school?*
Chapter 1: Leadership Context and Purpose of the Action

Once you have decided on a problem and formulated some research questions you will want to build a case for their investigation. In action research dissertations, one way to accomplish this is to take a systems perspective and situate your problem within the varied contexts in which it exists including the national/international context, your personal context, and the local context – your sphere of influence (systems, district, organization, school, classroom). Stake (1986) observes that this is an important step in the research process because when action or change is necessary, it is always influenced by external demands. Herr and Anderson (2005) suggest when it comes to action research a “highly condensed chain of influence” (p.63) exists.

National Context

As a researcher it is important to contextualize your work in the systems that surround it. The national context should show the need to tackle your problem from a broad and worldwide perspective. Two examples are provided in what follows.

In the coming years, jobs requiring at least an associate degree are projected to grow twice as fast as jobs requiring no college experience. We will not fill those jobs – or keep those jobs on our shores – without the training offered by community colleges.

President Barack Obama, July 14, 2009

Enrollment at community colleges has grown for a number of years (Mullin & Phillippe, 2011). One reason for this continual enrollment growth is the affordability of community colleges tuition in comparison to four-year academic institutions (Crawford & Jervis, 2011; Fonte, 2011; Zeindenberg, 2008; College Board, 2009; Rowh, 2006). Community colleges are regionally accredited two-year academic institutions that award associate degrees as the highest credential (Horn, Nevill, & Griffith, 2006). Community colleges are academic institutions that provide individuals with lower economic means an opportunity to further their education. They prepare students for transferring to universities and offer certificates for entering the workforce. These institutions provide an opportunity for individuals to upgrade current skills and prepare displaced workers for employment (Boggs, 2010).

On July 14, 2009, President Barack Obama introduced the American Graduation Initiative. This financial initiative provides support for individuals interested in attending college as well as financial resources for colleges. According to the President, an additional five million students will earn degrees and certificates by 2020 (Obama, 2009). With the status of the current economy and budget cuts across academic institutions, the attainment of this goal appears questionable. Providing for five million individuals to complete an education seems unlikely considering that the educational factory model is ineffective.

While access to higher education has increased, student completion rates in degree and certificate programs have decreased, especially for community college students (Tinto, 2011). Tinto (2011) proposes that efforts have been made to improve student completion rates at the
institution and program levels, but often changes are not implemented at the classroom level. In his words, “Most innovations fail to substantially improve the classroom experience – the one place where students connect with faculty and engage in learning” (p. 2). The more students are academically and socially engaged in classroom activities, the more likely it is that they will be successful in the classroom (Tinto, 2010). Educators must create engaging learning environments that will make mathematics relevant for their students in hopes of increasing completion rates.

Here is another example:

The latest statistics from the National Assessment of Educational Progress (NAEP, 2011) indicate slow progress in improving the writing proficiency of our nation’s children. On the latest assessment only 24% of eighth grade and twelfth grade students tested at the proficient level for basic writing skills and only 3% performed at an advanced level. This lack of progress and low proficiency becomes problematic as students move into college because they are expected to write at advanced levels using more complex skills (Draper, Barksdale-Ladd, & Radencich, 2000; Kellogg & Raulerson, 2007). Findings from the National Commission on Writing for America’s Families, Schools, and Colleges (NCW) indicate that more than half of first year college students are unable to write papers that are relatively free of errors and produce writing that analyzes and synthesizes information (2003).

There are many good websites that can help you situate your study within the national context. This student used a policy brief from the American Association of Community Colleges found at:

http://www.aacc.nche.edu/Publications/Briefs/Documents/2013PB_01.pdf

Other good sources include:

National Center for Education Statistics (NCES)
http://nces.ed.gov/

The PISA 2012 U.S. public-use data files and documentation are on this website at:

Groups like the National Education Association also publish findings at:

**Personal Context**

In addition to the national context it is also important to explain your personal knowledge of the problem and need for action. Your personal context or perspective should include your voice and experiences. Here is an example from a dissertation.

I believe all children deserve a successful educational experience that includes teachers and parents skillfully collaborating to guide their steps as they develop into assertive learners and critical problem solvers. It is this conviction that has given direction to my professional and educational compass. My educational journey started twenty years ago as a
teaching assistant for undergraduate students at the University of Wisconsin-Madison. Upon the completion of my Masters Degree I relocated in Phoenix, Arizona where I started teaching middle and high school students who were incarcerated at Black Canyon Federal Correctional Center. An overwhelming majority of those students were Latino and from low-income families. After five-years of this eye-opening experience, I searched for and found a job teaching impoverished, immigrant, Latino parents in a school district in Central Phoenix where I have worked since. During this time I received a second Masters degree in Curriculum and Instruction, and I am currently completing a Doctor of Education degree in Educational Leadership and Innovation. I serve as the Director of the Community Education Department for the school district. My work and passion are focused on meaningfully connecting parents and teachers to maximize student learning. Our Community Education Department serves nine K-8 schools and provides educational opportunities for approximately 2,000 parents and community members each year. At each school campus a parent liaison leads the parent involvement efforts and my major responsibility is to provide the parent liaisons with departmental goals, action steps, administrative support, and the professional development necessary to achieve our goals.

I have learned over my twenty years of work with minority, working class families that all parents want their children to succeed academically and professionally. The injustice lies in the fact that only some parents have the knowledge and educational attainment that are most often associated with parental advocacy and involvement for quality education and academic success. Creating a sustainable system in schools that supports parent-teacher collaboration and provides parents with knowledge and training on how to be engaged is at the heart of this action research study.

There are a few things you may notice about this example. First, the author uses the pronoun “I.” While many dissertations do not do this, it is appropriate for an action research dissertation because they require personal conviction and leadership. Also notice the narrative style. Herr and Anderson (2005) note that this is acceptable for action research dissertations because, “stories are shared daily among practitioners as part of an oral craft tradition” (p. 63).

As researchers, the students who wrote these dissertations were simply telling their own stories in an informed and scholarly manner. Effective writing is important in dissertations and to achieve this it is important to consider both the content of your work and the presentation. Content is the essence of your scholarship. It is the message you want others to understand about your work. So make sure that each section of your dissertation has content worth reading. Presentation refers to how your dissertation looks, its font, spacing, tables, graphics, and so forth. Presentation helps your reader, understand your content.

**Situational Context**

In addition to the national and personal context it is also important to set your study within your situational context. In this archival and demographic data (e.g., test scores, composition of targeted group, type of schools/organizations) are especially useful. Here is an example.
The district I work in has a student population of 6,700, consists of nine-Title I schools, and is located in Phoenix. The demographic composition is 5% African American, 5% Native American, 5% White, and 85% Hispanic. Ninety percent of the students receive free or reduced lunch and 33% are English Language Learners placed in English Language Development classrooms, consistent with state law requirements. Special education is provided to 12% of the students and 4% of the students are classified as gifted and talented. The district has a 40% to 45% mobility rate, a 7% absenteeism rate, and suspends or expels an average of 7% of its students each year. The district shares its attendance area with four shelters that serve abandoned children, females who are victims of domestic violence, and displaced families facing homelessness. On average, 300 homeless students attend schools in the district.

Of considerable importance for the context of this study is the issue of immigration status among some parents and students. Since 2007, Maricopa County Sheriff, Joe Arpaio, has used his power and resources to arrest and deport undocumented immigrants. His deputies regularly conduct raids in diverse community locations aimed at jailing and deporting undocumented residents. Many of these deportations have resulted in parents being separated from their children, and children having to be raised by neighbors or friends. Families in the school district live under constant fear of being targeted. The majority of Hispanic children in the district are American citizens with undocumented parents; whereas, some families have older children who are undocumented and younger children who are citizens. A large number of these families have been living and working in Arizona for many years. Parental involvement in school for many district families translates into leaving the safety of their own homes and taking the significant risk of being arrested. Despite that fear, parents are willing to take the risk to provide their children a greater chance at academic success. To compound the anti-immigration sentiment, in 2006 Arizona passed a referendum, Proposition 300 that forbids college students from receiving financial assistance unless they can prove legal residency. These tremendous challenges faced by community members in the district are the social backdrop against which this action research study is set.

In the situational context you should explain the things that have been tried in the past to address the problem. Mills (2014) comments that action researchers consider the what, who, when, and how of their research. That they ask:

- What evidence do I have this is a problem?
- What has been tried to resolve the problem?
- Who is being affected?
- What is currently going on?
- How often does this happen?

This next section from a dissertation captures these ideas.

The district has struggled with student achievement as measured by state standardized testing for many years. For this reason, it was labeled a failing district and put on a district improvement plan by the Arizona Department of
Education in 2005. The district has made great strides in student performance since 2008, and in 2009 six of the nine schools were labeled performing plus and the remaining three were labeled performing. To assist the district in improving instruction and learning, WestEd with its “Districts Moving Up” initiative in partnership with the Ellis Foundation have worked closely with teachers and administration. This partnership has led to a restructuring of the district’s professional development for teachers and administrators. As a result, the district has implemented a more systemic teacher evaluation system that aims to create consistency in the quality of instruction and student engagement in learning across all nine schools. In addition, school administrators have been trained to be more involved with coaching teachers and modeling best practices, which has increased administrators’ abilities and influence as instructional leaders.

The district’s central administration and its elected Board have always supported community education services and parent involvement initiatives. The Community Education Department is made up of a district level director, a coordinator, a secretary, one full-time teacher, two part-time teachers, and nine school parent liaisons. Consistent with the diverse needs of parents in the district, classes and workshops are available to parents and include Parent Leadership Conference; school based parent workshops related to student learning; Family Literacy I, II, III, and IV; Parent-Child Kindergarten Readiness; Basic Technology classes and GED Preparation.

Despite high parent turnout at training workshops and other involvement opportunities, the results with respect to student achievement did not demonstrate direct gains as a result of parent involvement. This led to an in-depth analysis of the context and focus of the parent involvement opportunities that were offered in the nine schools. The analysis indicated that in our Title I schools, 99% of time, effort, and resources for parent involvement opportunities were mostly disconnected from student academic achievement.

The section above notes that the researcher did some preliminary data gathering. Mills (2014) calls this reconnaissance and notes it to be the time when a researcher reflects on his/her own practice and beliefs.

In other instances, data are collected through more formal cycles of inquiry. In our program students complete two to three cycles of inquiry before they conduct the dissertation phase. This is important because preliminary work helps a researcher better understand the problem, try out potential actions, and develop and refine methodologies. Here is an example from a student who performed two cycles of inquiry prior to her dissertation.

**During my first action research cycle conducted in the spring of 2012, I wanted to understand how my students felt about writing and themselves as teachers of writing. In this cycle, I discovered that the preservice teachers in my classes were willing to openly express their apprehensions about teaching writing in the elementary school. Through attitude surveys and semi-structured interviews, it became apparent that even though I had set up a collaborative**
environment, most of the preservice teachers I was working with did not view themselves as proficient writers. Many noted past negative experiences as the major factor as to why they viewed writing and the teaching of writing with disdain, citing writing to irrelevant prompts and harsh criticism of their writing as the two areas that had the most impact on how they felt about writing. Participants in my study did not believe they had acquired the skills necessary to teach writing and did not feel confident in teaching writing when they entered the elementary education program. The results of my first cycle left me wondering if there might be a way to understand and enhance the writing identities of my students. So I conducted a second cycle of action research in my EED 433 course in fall of 2012.

Participants in the second cycle included 17 females and 4 males ranging in age from 19 to 43 years of age. The participants were from diverse cultural and economic backgrounds. Using interviews and class discussions, I found that students in this course, like the others, expressed apprehension toward writing and a decided lack of confidence in teaching writing. Data reiterated the findings of the first cycle. Preservice teachers again cited previous writing instruction and harsh criticism of their writing as factors in their view of themselves as writers and teachers of writing. To understand these feelings, cycle two was an investigative cycle using visual images of teachers as a catalyst for preservice teachers to explore their identities as writers and teachers of writing. Data results from this cycle indicate that using visual images of teachers followed by classroom discourse and journaling about what it means to be a writer and teacher of writing might help preservice teachers build writer identities by examining and confronting their beliefs and values regarding what it means to be writers and teachers of writing. Therefore, the intervention for my action research dissertation will be an adaptation of a visual literacy strategy known as full circling.

Chapter 1 should end with a general description of the action that will be taken and the research question(s). Here is an example.

The goal for this action research is the implementation of active learning strategies using cooperative learning techniques to promote interest and student involvement in learning. The research questions for this study are: 1) How and to what extent does the integration of cooperative learning strategies in a developmental algebra course affect student learning? 2) Will changing from lecture-based instruction to learner-centered cooperative learning activities create an environment that improves student self-efficacy? and 3) What are student perceptions of cooperative learning?

Closing Thoughts on Chapter 1

Thanks to CPED, faculty are beginning to recognize the importance of allowing students like you, to research the problems of practice you are facing within your own contexts (Laboratories of Practice). Instead of writing dissertations that are theoretical and removed from practice CPED encourages a Dissertation in Practice. Replacing theoretical dissertations with real-time research projects is part of a comprehensive effort aimed at making the EdD a more relevant
degree for practitioners. If it is appropriate to your context, and supported by your committee, action research can be one way to approach your dissertation. However, remember that there will be challenges if you do not think things through. Conducting action research in your own context takes leadership, vision, courage, and support. Chairs and committee members cannot help you gain district or organizational approval for your study, bail you out of an ill-conceived action plan, or require your constituents to comply. As Dr. Jill Perry, Director of CPED notes, “...they [dissertations in practice] actually involve quite a bit more rigor because the research being done has a dual purpose: It has to be accountable to the institution in the local context as well as to the academic structure of the university” (Rosenthal, 2014). Writing and enacting a successful action research dissertation will depend on you and your committee. Programs that support this type of work will encourage you to begin researching early, conduct your research in cycles, and provide coursework and field-based opportunities that will support what you are doing (e.g., courses on innovation, change, leadership and methodology), along with dissertation groups for cognitive, professional, and social support. Now that you have thought about action research, research problems, and the contexts that surround them, let us move on to Chapter 2.
Chapter 2: Review of Supporting Scholarship

In our program Chapter 2 is developed around this guideline:

The action is informed by the best scholarship available. The review of scholarship in the dissertation reports especially appropriate selections from the literature; it is targeted, selective, practical, and highly relevant.

Shulman et al. (2006) and Herr & Anderson (2005) have stated that dissertations written by EdD students should be more practical and less theoretical than those written by PhD students, but that quality should be maintained. Smith (2012) suggests scholar practitioners show quality through originality and critical thinking. To her, originality is demonstrated through interpretation, application, and critical analysis of literature especially in terms of how it relates to one’s practice and one’s self as a practitioner. Smith sees critical thinking as analyzing pertinent theoretical perspectives, relevant literature, and the research process. Criticality in Smith’s eyes is not merely an intellectual skill, but a state of mind a leader develops as s/he conducts research. Development of criticality encourages thought, action, and mindfulness of one’s self as a leader (Fulton, Kuit, Sanders, & Smith, 2013).

This way of thinking about literature is important to EdD students because students like you need to think critically and reflectively about your practice, including the literature and research that supports and constrains it (Fulton, et al., 2013). Writing a literature review meets programmatic (and dissertation) requirements, but it should also help you extend your professional knowledge and critical thinking skills. In CPED (2010) terms, performing Inquiry as Practice is defined as: The process of posing significant questions that focus on complex problems of practice. By using various research, theories, and professional wisdom, scholarly practitioners design innovative solutions to address the problems of practice. As such, Inquiry as Practice requires the ability to gather, organize, judge, aggregate, and analyze, literature with a critical lens.

CPED’s (2009) fifth and sixth working principles also are aligned with this perspective because they state the professional doctorate:

Principle 5 - Is grounded in and develops a professional knowledge base that integrates both practical and research knowledge, that links theory with systemic and systematic inquiry.
Principle 6 - Emphasizes the generation, transformation, and use of professional knowledge and practice.

Using Literature in Practitioner Inquiry and Action Research Dissertations

Action research dissertations provide an opportunity for scholarly practitioners to read scholarship and broaden their thinking. Maxwell (2006) offers five reasons to do a literature review. These include:

• justification (why this study is needed);
• purpose (why it is necessary to do this study at this time and in this place);
• develop a conceptual framework (what others can tell me);
• find methods to utilize (learn how have others have collected and analyzed data on
similar problems); and

- understand how and where one’s work fits (what your results will contribute to local knowledge and the field).

In a similar vein, Alber (2011) documents that a literature review in action research serves three purposes: 1) it demonstrates that the researcher knows his/her field of study; 2) it informs and shapes the work from problem finding, to action planning, to data collecting and analysis; and it helps the readers (committee members, and constituents) understand the intellectual context of the work. Like Maxwell, Alber also believes that literature provides: 1) a rationale for a study, 2) perspectives that have been used and tried (or not), and 3) key concepts and insights surrounding the problem. Similarly, Ivankova (2014) claims literature reviews in action research should help a researcher:

- understand what is known about the problem/issue;
- understand varied perspectives on the problem/issue;
- connect one’s own ideas and experiences with those of others;
- justify the need for an action or improvement;
- develop a conceptual/theoretical framework; and
- identify appropriate methodological approaches.

Like these individuals, Stinger (2007) writes that literature in action research should provide validity for actions on a problem. To Stringer, literature provides a stable, established, and powerful body of knowledge that has been developed through a long history of systematic investigation. However, Stringer is quick to note that literature alone does not provide definitive answers. Literature is useful only if a researcher digs below the surface, understands how and when to apply the ideas it contains, and knows when and how to adapt or change it. Thus, the professional knowledge you have as a practitioner researcher matters!

Jarvis (1999) offers a similar perspective on literature because he remarks that it should be used with caution. Jarvis proposes that literature should serve, not dominate, the actions and ideas of scholarly practitioners. So even though you must use literature to broaden your perspective and contextualize your work, you must also trust your instincts and consider if ideas and theories presented apply to your context. Dana (2013) cautions action researchers to use the literature as opposed to being used by it.

Shulman (2007) offers another perspective of literature but contextualizes it in what professionals, like you, should know and do. To Shulman, professionals must understand the wisdom of their field, that is the history, theories, and viewpoints that have made it a profession. In Shulman’s (1998) words, “Practice is where professionals do their work, and claims for knowledge must pass the ultimate test in practice” (p. 518). Hughes (2000) offers three strategies EdD students like you can use to approach literature in this way. These include:

- interpretation – filtering literature thorough your experiences;
- verification – considering the correctness of the information provided based on your experience and reflection; and
- reasoning – critically analyzing assumptions and inferences posed in literature in terms of reality.
Also important to action researchers is the cyclical nature of their work. As actions are implemented, original ideas and, the literature used to support them, often need to be changed, updated, and refined (Willis, Inman, & Valenti, 2010). Mills (2014) states that when action researchers use literature they need to be systematic, analytical, and engaged in an ongoing process. To Mills action researchers must always be looking for new and updated ideas.

Like the authors above, San Miguel and Nelson (2007) speak of the importance of timeliness and selectivity of literature. These authors suggest that scholarly practitioners ask questions like, “What sources will help me understand the social, political, and personal factors surrounding the problem affecting my context and me?” “Who can help me think critically about the action that will be implemented as it moves from cycle to cycle?” “What sources can help me gain a theoretical and practical point of view?” “How can I use what others have learned to improve my context and, myself as a leader?” Key to answering each of these questions is using the most reliable and up-to-date sources available (Galvin, 2013). But at the same time, sources must be concise and understandable (Maxwell, 2006). Writers of action research dissertations do not need to show all they know. They must be selective and constantly ask themselves, “Why am I including this piece in my work?”

Good literature is valuable because it provides clarity for unknown terminology and offers insight into new authors, their publications, research, and theories. Herr and Anderson (2005) suggest action researchers use literature to frame their work in selective, scholarly, and practical ways. Crucial to these authors and their ideas is audience, who for scholar practitioners like you, are both practitioners and academics. Like PhD students, you need to write a literature review for your institutional and program requirements and your committee. However, because you are a practitioner scholar, you also need to write for your constituents. Rather than analyzing vast amounts of literature to identify gaps or publish in scholarly journals you need to use literature to understand and enact positive change.

We now use literature reviews from dissertations to demonstrate these ideas. We provide examples of introductions, literature to gain insight into the problem and justification for the action, tradition/stance, methodologies, and theoretical frame(s).

**Introductions**

When writing your dissertation consider it to be a large document that needs cohesion and segues between chapters. So begin your second chapter with a brief review of what was in chapter one and paragraph on what this chapter will contain. The following example illustrates such an approach.

The previous chapter discussed the need to build preservice teachers’ identities as writers. This chapter includes the theoretical frame and a review of existing literature that guide this action research project. The first section describes the overarching framework around which the study was developed. The second section reviews the literature and perspectives that inform this study, including why identity matters, imagery and text, discourse, and reflective journaling.
In this chapter I will present a review of the literature that supports the implementation of cooperative learning in an introductory algebra course including Bandura’s self-efficacy theory, Vygotsky’s constructivist theory, and Morton Deutsch’s social interdependence theory. Students learning together offer learning benefits through personal and active student engagement in comparison to traditional instruction (Barkley, Cross & Major, 2005). I propose that cooperative learning can increase student learning and student self-efficacy as well as promote successful course completion in developmental mathematics courses.

In this next section we take ideas posed above about literature and expand on them within dissertations. The first example segues the introduction into the literature review.

Cooperative Learning

Active learning with cooperative learning experiences has been recommended as an effective strategy for college level courses. Evidence that cooperative learning is beneficial can be found at Patrick Henry Community College (PHCC) in Martinsville, Virginia. Through collaboration with faculty, PHCC implemented cooperative learning strategies to increase retention among first-year college students. The college emphasized positive interdependence and individual accountability within the cooperative learning program using three strategies (a) base groups, (b) informal groups, and (c) formal cooperative learning groups (Achieving the Dream, n.d.). Results demonstrated that students were more apt to persist academically if they participated in courses that involved cooperative learning. Ninety-five percent of students who completed at least two courses with cooperative learning strategies continued their studies the second year compared to 75% of the students enrolled in courses that did not involve cooperative learning (Achieving the Dream, n.d.).

Cooperative learning involves groups of students who work together to accomplish a common goal. Each individual accomplishes his/her own learning goal only when other members of the group accomplish their own learning goals (Johnson, Johnson, & Smith, 1991). For a small group to be cooperative, certain components must exist. Cooperative learning groups must have (a) positive interdependence, (b) the promotion of members’ learning and successes of members within the group, (c) group accountability among members, (d) the use of interpersonal skills
for success and (e) group processing regarding members working together effectively (Johnson, Johnson, & Smith, 1991; Barkley, Cross, & Major, 2005). Research demonstrates that both underprepared and well-prepared students benefit from learning in groups (Barkley, Cross, & Major, 2005). Contrary to individualistic and competitive learning, cooperative learning does not involve success for only one individual; in cooperative learning the entire group achieves success or failure. In competitive learning environments, students work against each other to achieve a goal that not everyone can achieve (Johnson, Johnson & Smith, 1991). I propose that cooperative learning teaching strategies are beneficial in improving the self-efficacy and course completion rates of students enrolled in developmental mathematics courses.

Here is another example.

In this chapter, information about parent involvement programs will be presented. Three parent involvement programs and strategies that have earned national recognition among researchers and educators in the field of parent involvement will be reviewed and discussed. Although there are many more recognized parental involvement programs, the scope of the review is limited to those most closely related to this action research project.

**Cultural Capital and Concerted Cultivation**

Pierre Bourdieu’s (1977, 1984) theory of cultural capital serves as the primary framework underlying this innovation. For Bourdieu, cultural capital is the socialization outcome that results in attainments being reserved for the elite and noble through generations of privilege, experience, and sophistication. Elite cultural capital encompasses knowledge of the arts, literature, music, and all manners of elite taste and behavior, which families enjoy generation after generation and which becomes the common environment and context of further socialization. In a French context, Bourdieu argues that educational institutions are not value neutral; instead they are laden with the values of the dominant class. When middle and upper-middle class students enter school, they arrive with and have the ability to activate distinctive language, behaviors, attitudes and actions that are preferred and rewarded by educators. Family acquired knowledge of cultural capital that is aligned with school values provides an advantage for these students over others. Students from more humble origins have cultural capital that may not be aligned with school values and need to acquire academic skills and reposition their funds of knowledge to learn to emulate those acclaimed modalities of their more wealthy counterparts without having attained the same first-hand experiences before entering school. Bourdieu’s analysis centers on the ways schools contribute to the reproduction of power, privilege, and position by continuing to support unspoken cultural standards. Schools have unwritten expectations of students being intimately familiar with school traditions, the arts, advanced vocabulary and pronunciation, personal taste, and a developed sense of creativity, all of which are based on experiences most often reserved for the wealthy. In summary, Bourdieu’s theory of cultural capital posits that students in a position of privilege have an inherited and family constructed set of social advantages that are consistent with those needed to rise to the top in the educational system that is in place. Bourdieu’s cultural capital theory serves as the key point of departure around which this action research journey is organized.
A second, closer to home theory that frames this action research project is Annette Lareau’s (2003) “concerted cultivation.” Lareau imports Bourdieu’s cultural capital into the American family and educational context. Through intensive, groundbreaking ethnographic research, Lareau provides a transparent analysis of the family mechanisms involved in social transmission of class status and academic success. Lareau observed and interviewed families of several children from lower SES backgrounds, from middle class homes, and from upper-middle class homes where parents were professionals. The focus of her research was to examine: (a) the time used for children’s leisure activities, (b) the way language was used in the family, and (c) how adults were involved with their children’s social and educational lives.

She found that across social classes all families had many characteristics in common. They all had a similar degree of emotional connection, all families had rituals they practiced together which determined their daily activities, all families had tragedies and misfortune, all families had individuals with different temperaments and personalities, and all families had differing degrees of home organization and orderliness. As Lareau (2003) stated, “they all felt like home” (p. 238). Although all families had clear similarities, the differences among them were marked according to social class, with middle and upper-middle class families being engaged in concerted cultivation of their children’s development. These families carefully assessed their children’s talents and fostered them by organizing and structuring their “free time” to include lessons and organized activities. These families placed emphasis on communication, opinions, social skills, assertiveness, and the ability to skillfully negotiate on one’s behalf. These parents were also highly aware of social and cognitive development, so games and activities were used to target these ends.

Lareau’s observations revealed that middle and upper-middle class families focused their energies and efforts to provide their children with skills needed to be college-ready, driven, high achievers to the point where many of them suffered from an excessive sense of entitlement. The theory of concerted cultivation provided practitioners with a magnified view of some of the practices that explained the way professional, educated, privileged families ensured their children were prepared to replicate family successes.

Lareau’s (1987, 2003) theory enriched my understanding and awareness of latent social exclusion practices often unwittingly carried out by school professionals as they rewarded children who had the ability to ignite actions, behaviors, and attitudes that were well-aligned with those possessed by their middle class teachers. This behavior by educators was not difficult to fathom given the nature and goals of contemporary education. Among other things, teachers are charged with the responsibility of preparing children to compete in high stakes tests and assessments. The survival
of a teacher’s and a school’s reputation rested on students’ ability and drive to perform well, which was consistent with practices associated with concerted cultivation.

Now that I have provided a glance at details concerning the child rearing practices of privileged parents and how those practices are aligned with the American education system, what remains unclear is whether the principles associated with “concerted cultivation” can be shared with and learned by willing low SES parents to foster student learning. Specifically, can low SES parents implement strategies to encourage achievement and learning in their children by better knowing about the material being taught in the classroom, their child’s strengths and weaknesses, and by being provided with appropriate ‘teaching’ strategies by the classroom teacher?

**Parent Involvement Programs**

In this section, information about parent involvement programs will be presented. Three parent involvement programs and strategies that have earned national recognition among researchers and educators in the field of parent involvement will be reviewed and discussed. Although there are many more recognized parental involvement programs, the scope of the review is limited to those most closely related to this action research project.

Joyce Epstein (1996) established The National Network of Partnership Schools (NNPS) to assist states and school districts in an effort to build comprehensive programs of school, family, and community partnerships. The NNPS works primarily with inner-city, Title I schools. Its membership has grown from an original 202 schools to over 1,100, which speaks of the need for parent involvement initiatives. It is associated with the Center on School, Family, and Community Partnerships at Johns Hopkins University (NNPS Website, 2010). The NNPS model is research-based and offers schools, districts, states, and organizations a framework for organizing and implementing a parent and community involvement program. The school model includes four essential elements: an action team for partnerships, a framework of six types of involvement, a one-year action plan, and a program evaluation component. The NNPS members receive professional development, including the manuals and literature that assist in following the appropriate steps for implementation. In addition to professional development, NNPS makes recommendations for improvement in policy and practice and publishes best practices that recognize successful models. Epstein’s (2002) six types of involvement is the framework upon which the NNPS school model is built:

(a) Parenting—assisting families with parenting skills and setting home conditions to support children as students. Also, assist schools to better understand families;
(b) Communicating—conducting effective communications from school-to-home and from home-to-school about school programs and student progress;
(c) Volunteering—organizing volunteers and audiences to support the school and students. Provide volunteering opportunities in various locations and at various times;
(d) Learning at home—involving families with their children on homework and other curriculum-related activities and decisions;
(e) Decision making—including families as participants in school decisions, and developing parent leaders and representatives; and
(f) Collaborating with the community—coordinating resources and services from the community for families, students, and the school, and providing services to the community (p. 15).

For the context in which this action research is framed, the NNPS model has several limitations. First, the NNPS model is too broad in scope; it does not have as its priority specific action steps for regularly connecting parents and teachers to improve student learning. Second, to increase student achievement Title I schools need parents to be meaningfully involved in their children’s learning, which requires that teachers coach parents in academic skills to build their knowledge and capacity to be involved appropriately. Third, my district does not have the manpower or expertise to oversee the planning, implementation, and professional development of Action Teams for Partnerships at each school. Fourth, the district is best served by an affordable, internal, systemic initiative that is sustainable and in which teachers and parents become the experts, with a goal that is first and foremost student learning. Finally, the NNPS does not meet the needs of my study population because it does not offer a solution to the district’s present priority of increasing parent engagement and accountability in student achievement.

**Tradition/Stance**

Hollingsworth (1997) suggests that anyone writing an action research dissertation explain their “explicit ideological commitment to addressing social and political problems of education through participatory research” (p. 89). This is the heart of action research so literature reviews in action research dissertations should contain a section on the epistemological stance taken by the researcher. This is important because as noted earlier, there are many different definitions and ideals of action research. Action research is a broad term with varied definitions that have emerged from different intellectual traditions and ideals (Herr & Anderson, 2005). A few of these include:

- organizational development/learning
- action science
- participatory research
- critical research
- participatory evaluation
- teacher as researcher
- practical classroom research

So, as an action researcher, be sure to articulate the tradition/s your work aligns with and the epistemological, methodological, and political dilemmas surrounding your beliefs. Doing this will help your committee and constituents understand your motivation for action. The next section contains an example from a dissertation.
**Action Research**

A variety of action research approaches are in current use, ranging from critical action research to practical classroom action research based on personal interests and local contextual issues. Critical action is derived from theoretical perspectives such as critical theory or postmodernism and focuses on gathering information that results in emancipatory outcomes. On the other end of the spectrum, practical action research focuses on the teacher as researcher and decision maker. In this action research perspective, teachers are primarily concerned with ‘how to influence daily practice’ rather than theoretical conceptualizations.

This action research study is situated between the critical action research perspective and the practical action research approach. It is rooted in the theoretical perspectives in the sense that it is “…democratic…, equitable…, liberating …, [and] life enhancing, enabling the expression of people’s full human potential” (Stringer, 2007, p. 11). It is practical in sense that it aims to find a solution to local problem. Specifically, this action research study capitalizes on untapped parent, teacher and student aspirations, abilities and resources to implement a more effective approach to parent-teacher collaboration that ultimately fosters increased student learning.

**Methodology in the Literature Review**

Maxwell (2006) notes that reviewing literature helps researchers discover methods to use. Given this, it is important to establish a rationale for your methods and the tools that you will use. This is different from information in Chapter 3 on methodology because it should contain the specific details about the tools and procedures you will use. Chapter 2 establishes the credibility for using these sources. Here is an example.

**Reflective Journaling**

Reflective journaling is one way of promoting, encouraging, and documenting identity development and change. Journal writing encourages students to articulate feelings, analyze how their feelings impact their identity, and question past assumptions and beliefs (Spalding & Wilson, 2002). Dewey (1933) states that reflective thinking begins as a state of doubt or perplexity about beliefs that weaves its way through the search for resolution or clarity. He believed that reflection does not occur naturally, but must be taught. However in a study on reflective journals in the college classroom, Hubbs and Brand (2010) found that less than half of the instructors in their study provided students with criteria or guidelines for journaling. In a study of scaffolds to enhance online reflective journal writing, Lai and Calandra (2007) found that reflective journaling is only effective if educators expose preservice teachers to the principles of reflective journaling and provide conceptual frameworks, such as question prompts and modeling of journal writing. When instructors provide criteria and guidelines to connect a learning experience to reflective journaling, it can become a meaningful activity for both personal and professional development (Hubbs & Brand, 2010).
In the latest *Unit Standards for Effective Teacher Preparation*, the National Council of Accreditation of Teacher Education (NCATE, 2008) cites the ability to reflect as a model of best professional practices in teaching. In the document, professional education faculty members are charged with teaching in a way that encourages preservice teachers to demonstrate the ability to reflect. In addition, Norman and Spencer (2005) state that preservice teachers must critically examine their experiences and beliefs as well as the beliefs of their peers to understand how personal beliefs and experiences impact their learning and teaching practices. Through this type of reflection, preservice teachers can look at perspectives or approaches that they might not have considered as they develop their identities as teachers and writers (Hubbs & Brand, 2010; Spalding & Wilson, 2002; Walkington, 2005).

**Theoretical Frames**

In action research dissertations, Chapter 2 should also contain a theoretical framework, or collection of interrelated theories that will guide the action, data collection, and data analysis. Theory for action researchers draws a researcher’s attention to particular events or phenomena and can shed light on relationships that might otherwise go unseen. Good theoretical frames bring theories together and uses what is best in each of them. This is important because educational problems are complex - no one theory can explain human behavior. That is why students writing action researcher dissertations use multiple theories as part of their framework. Here are a few examples.

**Theoretical Framework**

Theoretical perspectives relevant to my action research are Bandura’s self-efficacy theory, Vygotsky’s constructivist theory, and Morton Deutsch’s social interdependence theory. These theories will inform my use of cooperative learning strategies to offer students an engaging atmosphere for learning, as well as guide the interpretation of results.

**Bandura’s Self Efficacy**

Self-efficacy is a person’s perception regarding their ability to complete a task. It is the judgment of a person’s aptitude to organize and complete specified types of accomplishments (Bandura, 1997). Self-efficacy is a personal judgment of one’s capabilities; not a comparison of self to others (Young, and Ley, 2002). An individual’s belief in their capability to “organize and execute the courses of action required to produce given attainments” determines success or failure in completing a goal (Bandura, 1997, p. 3). Self-efficacy beliefs influence motivation by intensifying aspirations and the anticipated results of one’s efforts. These beliefs not only affect thought processes, but contribute to the level and persistence of motivation (Bandura, 1997).

Waddill and Marquardt refer to Knowles’ observation that adults have internal motivators that guide them through the learning process. These motivators include, “self-esteem, better
quality of life, self-confidence and self-actualization” (2003, p.408). These motivators may influence the self-efficacy of individuals.

Two interrelated factors that can influence student success in mathematics courses are previous mathematics experience and self-efficacy. The acquisition of mathematical knowledge is correlated with motivation and achievement. (Kim and Keller, 2010). Because mathematical knowledge develops over time, low self-efficacy and the correlated low levels of motivation and persistence, may prevent the development of mathematical knowledge. Students may possess problem-solving skills, but if they do not believe that they can accomplish a task, they will not attempt to problem solve. This suggests that improving self-efficacy is crucial to the successful completion of a course. Basic skills alone will not ensure academic success.

For students enrolled in developmental mathematics courses their personal belief regarding their capabilities related to mathematics is a potential obstacle (Hall & Ponton, 2005). Students accept their lack of success in mathematics and believe that there is nothing they can do to be successful in mathematics courses. Given the importance of self-efficacy to student motivation, it is important for instructors to create a supportive learning environment that has the potential to improve self-efficacy. Creating a positive, active classroom atmosphere is essential to learning and to the increase of student self-efficacy beliefs.

A study conducted by Hall & Ponton (2002), compared self-efficacy of freshman developmental mathematics students to freshman first semester calculus students. Findings indicate that the calculus students had higher self-efficacy compared to the developmental mathematics students. For the purpose of my action research study, I suggest that many students enrolled in developmental mathematics courses tend to have low self-efficacy in regard to mathematics.

One strategy to increase student self-efficacy is the integration of active learning experiences and peer collaboration into classroom sessions. “People do not live their lives in isolation; they work together to produce results they desire” (Bandura, 1997, p. 7). Through the careful design of cooperative learning activities, which will encourage and support positive interdependence among group members, students will benefit from collective knowledge between group members.

In cooperative learning, all members of a team are expected to be responsible for contributing to the attainment of a common goal. “The active learning environment will not flourish if students do not accept responsibility for their own learning and participate in the learning environment in an appropriate way”(Michael & Modell, 2003, p. 63).

“As relationships within the class or college become more positive, absenteeism decreases and students’ commitment to learning, feeling, or personal responsibility to complete the assigned work, willingness to take on difficult tasks, motivation and persistence in working on tasks, satisfaction and morale, willingness to endure pain and frustration to succeed, willingness to defend the college against external criticism or attack, willingness to listen and to be influenced by peers, commitment to peers’ success and growth and productivity and achievement can be expected to increase” (Johnson, Johnson, & Smith, 1991, p. 43). The sense of community that can develop as a result of participating in cooperative learning experiences can decrease the likelihood of withdrawal from the course due to academic reasons.
Hall & Ponton (2005) indicate that an increase in mathematics self-efficacy results from positive experiences, whereas decreased self-efficacy results from negative experiences. In order to assist students in improving their perception of their actual ability, educators must acknowledge factors that are necessary for students to be successful in mathematics as well as college.

Research shows that there are specific strategies that can assist in the improvement of self-efficacy in students; these strategies include, planning tasks that are moderately challenging, using peer models, and teaching specific learning strategies (Margolis & McCabe, 2006). By providing moderately challenging tasks students may be more apt to work together to accomplish a goal. Through cooperative learning groups, students are more likely to demonstrate problem-solving models amongst peers. With students involved in peer modeling during problem solving activities, there is opportunity for growth in self-efficacy. Those offering peer instruction as well as those asking questions of their peers regarding specific problem solving strategies can promote growth in mathematics knowledge and self-efficacy. Self-efficacy in a mathematics classroom may be improved by encouraging students within their cooperative groups to attempt a problem solving strategy, stressing recent successes among members of the group, and providing frequent and focused feedback on specific activities on an individual and group level.

Vygotsky’s Constructivist Theory

Vygotsky proposed that individuals create knowledge through social interaction and engagement encountered through activity and dialogue about a shared task or problem (Driver, et al., 1994). Social constructivism proposes that ideas are constructed through student-teacher and student-student interactions (Powell & Kalina, 2009). According to constructivist theory, “learning is an active contextualized process of constructing knowledge rather than acquiring it” (Constructivism, 2010). Lecture-based practices that dispense information to students do not stimulate the construction of knowledge nor take into account the prior knowledge of the learner. According to the tenets of constructivist theory, the learner creates new knowledge through consideration of their prior knowledge in a given situation (Powell & Kalina, 2009; Merriam, Caffarella, & Baumgartner, 2007). Meaning is constructed by creating multiple associations between current and newly acquired information (Michael, 2006).

Constructivism deems it imperative for students to assume an active role in their own learning; this is essential for deep, long lasting learning that is also enjoyable and transferable outside of the classroom (Walczyk & Ramsey, 2003). Six principles describe learning with a constructivist viewpoint: (1) Material being learned is important to students. (2) Students have a deep level of interaction with content. (3) Students must be able to relate new information to what they already know. (4) Students must continuously update understanding as a result of new experiences. (5) New learning does not automatically transfer to new contexts to which it is relevant. (6) Students become independent learners if they are aware of the process of learning (Walczyk & Ramsey, 2003). It is important for instructors to understand how to embrace the knowledge students bring to the classroom in order to enrich the learning environment. Each student contributes personal experiences and prior knowledge to an academic setting. Cooperative learning activities will be designed to include all six principles in each activity.
The construction of new mathematical knowledge can be understood, and facilitated, through Vygotsky’s Zone of Proximal Development (ZPD). In the words of Vygotsky (1978) (the ZPD is) “the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance, or in collaboration with more capable peers (p 86).” The ZPD involves the amount of problem solving accomplished by an individual and what can be accomplished as a result of guidance from another individual (Rieber & Robinson, 2004). The ZPD is dependent upon the social interaction between individuals who are more experienced and those who are less experienced (Doolittle, 1997). “Exposing all students to concepts and understandings that are within their ability to grasp, but not yet part of their personal understanding, enables each to learn from other students those concepts that are just beyond their current level of development” (Barkley, Cross, & Major, 2002, p. 14). Maximizing the potential of the ZPD relies on complete social interaction; through guidance by peer relationships, the development of skills is greater than what is achieved alone (Fani & Farid, 2011).

Vygostsky’s views indicate that people have two levels of learning, social and internal (Rieber & Robinson, 2004; Doolittle, 1995; Doolittle, 1997). Mental functions as described by Vygotsky, include higher and lower levels. Lower mental functions are internal; examples of this type of mental function involve perceptions and involuntary attention. Examples of higher mental functions include language, problem solving skills, and voluntary attention (Doolittle, 1995). Through the use of cooperative learning groups, the two levels of learning are can be utilized. Internalization occurs when an individual first encounters a concept, behavior or attitude in a social environment with the social experience resulting in part of the person’s knowledge (Doolittle, 1997). Group members bring their existing knowledge (internal) and construct new knowledge based on social interactions with other group members. Vygotsky emphasized the need for social interaction in learning. Social interaction between less experienced and more experienced students is an important factor of the ZPD (Doolittle, 1997).

Good cooperative learning practices promote the possibility of engagement among students; such practices include intentional and significant exchanges of ideas that are an essential form of constructivism (Vermette & Foote, 2001). The exchange of ideas among students allows for a greater perspective on course content. Different perspectives on content may provide novel and stimulating learning opportunities for a student (Powell & Kalina, 2009). Through a collection of perspectives, students are able to increase their content knowledge base in comparison to acquiring a limited view when working alone.

Social Interdependence Theory

Social interdependence, the basis of cooperative learning, is a theory that describes how individuals are affected by one another’s actions. For example, social interdependence is present when the goal achievement of a particular individual influences the goal achievement of another (Johnson & Johnson, 2005). This type of dynamic determines the success or failure of goal achievement.

There have been several theorists who have made contributions to the theory of social interdependence. Gestalt psychologist Kurt Kaffka first noted the dynamics of group interdependence in the early 1900’s, which was refined by Kurt Lewin (Morgan, Rosenberg, & Wells, 2010). Morton Deutsch...
later expanded Kurt Lewin’s philosophy of interdependence among group members and he was the first to articulate social interdependence theory during the 1940s and make distinctions between interdependence types (Johnson, Johnson, & Smith, 1991).

Social interdependence is a characteristic existing in cooperative learning experiences and is an essential component in any cooperative learning activity. Cooperative learning has not only been one of the most successful teaching strategies for the past 60 years, but is commonly used internationally in various academic institutions ranging from preschool to adult education. (Johnson, & Johnson, 2005). Substantial evidence exists that indicates that cooperative efforts cultivate greater determination to achieve, more encouraging relationships, and better psychological health than individualistic or competitive efforts (Johnson, 2003).

Social interdependence is present when the actions of individuals and others affect outcomes; either positive or negative social interdependence exists within cooperative groups. Through positive interdependence, individual actions yield the achievement of group goals; negative interdependence prevents the achievement of group goals. Those with positive goal interdependence gain higher achievement than those who work alone and have the opportunity to interact with others (Johnson & Johnson, 2005). Students enrolled in developmental mathematics courses will benefit from positive interdependence because promotive interaction can be achieved. Examples of promotive interaction are encouragement and assistance among group members to complete tasks in order to achieve a group goal (Johnson, Johnson, & Smith, 1991).

These theories are essential in promoting meaningful learning in a classroom that involves cooperative learning. Through a positive cooperative learning experience, students will ultimately improve their mathematics self-efficacy, and encourage self-regulated learning, thus reducing the likelihood of withdrawing from class.

My innovation is transforming my teaching in developmental mathematics courses from lecture based to a learner-centered environment. Through personal observations as an instructor I have come to realize that if students are not intellectually stimulated, they will not actively participate in their learning. “Learner-centered approaches to science and mathematics instruction assume that only when students are active participants will learning be deep, enduring and enjoyable, and transfer to contexts beyond the classroom” (Walczyk & Ramsey, 2003, p. 566). The authors also suggest that learner-centered practices are not commonly used in college classrooms. I intend to integrate learner-centered cooperative learning activities in my instruction with the intention of making mathematics meaningful and having students retain content in long-term memory.

As a college instructor, it is important for me to establish a more rewarding learning environment so that students will attend class on a regular basis, have an enjoyable learning experience, gain meaningful learning and, establish a good foundation in the course content. As an instructor, I believe it necessary for me to empower students by showing them how they can remain in control of their own learning and also work with others. Having the social skill of collaborating with peers will assist students in their future employment. Employees with a strong foundation in problem-solving, critical thinking, math skills and the aptitude to work well in teams have a greater likelihood of success.

Here is another example. We include it because visuals are used.
Burke’s Identity Control Theory (Burke & Stets, 2009) focuses on the nature of an individual’s identity and the relationship between identity and their behavior in the social structure in which the identity is embedded. Burke holds that identity is “the set of meanings that define who one is when one is an occupant of a particular role in society, a member of a particular group, or claims particular characteristics that identify him or her as a unique person” (p. 3). People take on multiple roles in society, and therefore possess multiple layers of identity. The set of meanings used as a reference for an identity depends on which role they occupy. For example, a person may be a teacher, a mother, a spouse, and a musician. When an identity is activated in a particular role, feedback on that identity comes from (1) how the person sees themself, (2) how others see them, (3) how the person compares themselves to the social expectations of the role, and (4) the meaningful behaviors exhibited by the person that are a function of the role. To identify as writers, preservice teachers need to see themselves in the role of a writer, understand how others see them as writers, meet their own expectations of the functions of writers, and exhibit the behaviors of persons who function as writers (Burke & Stets, 2009). Figure 1 captures Burke and Stets’ identity model:

Figure 1. Components of Burke & Stets’ (2009) identity model.

These components of identity are organized into what Burke terms as a control system where individuals choose their behaviors based on how they view their identity in a specific role compared to the standards of the role. As they practice the chosen behaviors, they respond to the reactions of others around them. If they do not like the responses of others or do not feel that their behaviors are representative of the expectations of others or to the standards of the role, they will reflect on ways they can change or shift their identity to meet the acceptable standards and behaviors for the role (Burke & Stets, 2009). These identity shifts take on a social context as an individual strives to meet the role standards and behavior expectations of a specific group. The shifts come not only from identifying with a group but also from being accepted as a member of a group. This social acceptance reinforces the expectations of role standards and leads to a continuation of the acceptable role behaviors (Stets & Burke, 2000). Figure 2 captures Burke & Stets’ identity control model:
Figure 2. Components of Burke & Stets’ (2009) identity control theory.

Wenger also views identity from a social perspective. In Wenger’s (1998) social theory of learning, identity develops through participation in social practices where meaning making takes place. In this perspective, there is a strong link between identity and practice because identity “is a layering of events of participation and reification by which our experience and its social interpretation inform each other” (p. 151). According to Wenger, identity is built upon connectedness, expansiveness, and effectiveness. Connectedness is created through sharing histories, experiences, reciprocity, affections, and mutual commitment, while expansiveness allows individuals to easily transition among the many roles they occupy in their lives, and effectiveness enables learning through inclusive social participation.

These building blocks are incorporated into the components of Wenger’s (1998) social theory of learning. The components include meaning, practice, community, and identity. Meaning is how we are changing in our ability to experience our lives and the world as meaningful. It encompasses the way we compare ourselves to role standards and then adapt our social behaviors to reflect the standards. As we participate in a role, we interact with others who are fulfilling the same role and analyze their reaction to our role behaviors. The reaction of others either reinforces specific behaviors or precipitates a change in behaviors to meet the standards of the role, bringing meaning to who we are as a member of the role community (Burke & Stets, 2009; Wenger, 1998). Practice is the shared histories, social resources, and perspectives that help to sustain mutual engagement. This includes the multitude of experiences members bring to the community and how these experiences impact us as we interact and learn from others (Burke & Stets, 2009; Miller, 2006; Wenger, 1998). Community involves our active engagement in the world--how we see ourselves, how others see us, and our social behaviors within a role (Burke & Stets, 2009; Wenger, 1998). Identity is the way learning changes our behaviors in the context of a role. As we participate in a community and adapt to meet the role standards, we take on the attributes of the role and begin to see ourselves as a member of the role community (Burke & Stets, 2009; Wenger, 1998). Each of these four components is interconnected and reflects learning as social participation, shaping who we are and what we do.
within a learning community (Wenger, 1998). Figure 3 captures Wenger’s social theory of learning.

*Figure 3. Components of Wenger’s (1998) social theory of learning.*

**Closing Thoughts on Chapter 2**

As a scholarly practitioner writing an action research dissertation, it is important to contextualize your work in theory, research, and methodology that have been tested and tried in practice. Doing this is challenging but provides opportunities for you to dialogue with others, design effective actions, understand the effects of those actions, and contextualize your work in traditions that align with what you believe. As a scholar practitioner you need to show that you have carefully chosen current, relevant literature to improve both your contextual setting and yourself as a leader. Literature provides an opportunity for you to stand on the shoulders of giants who have come before. Literature provides new lenses and new ideas. Remember that a picture (figure) is worth a million words.
Chapter 3: Methodology

As with any chapter, begin your chapter on methodology should begin with a brief paragraph that provides information about the material that will be in the chapter. The following example illustrates such an approach.

The previous chapter provided a theoretical frame and research-based support on the need for this study. This chapter will provide a description of the setting and participants, my role as a researcher/teacher, the innovation, data sources and collection, and the analytical strategies for analysis.

When conducting an action research dissertation your efforts will be focused on the action (innovation) and assessing the outcomes of that action. Thus, the focus of your methodology chapter will be on making certain that readers clearly understand your action (your innovation/intervention) and the various ways you are assessing the outcomes of that action. Ideas like these once again align with CPED’s (2010) notion of *Inquiry as Practice* because at its heart is the ability to use data to understand the effects of one’s practice and CPED’s second principle which states the EdD: Is grounded in and develops a professional knowledge base that integrates both practical and research knowledge, that links theory with systemic and systematic inquiry.

Given the importance of the innovation and the outcomes in action research dissertations, it is important that you provide detailed information about the context in which your action research dissertation be carried out. In particular, detailed information about the setting and the participants is critical for your readers to fully understand your outcomes and the interpretation of the outcomes you render. Further, if you use mixed methods you will want to clearly describe the procedures you employed to ensure that the data and your subsequent interpretations are valid (quantitative) and credible (qualitative). The idea of mixed methods is important to this guide because students in our program are expected to employ this type of design. They are expected to develop their studies so both quantitative and qualitative data are gathered and analyzed.

Importantly, in action research, the researcher is not concerned with generalizability of the outcomes, uncovering universal principles, or hypothesis testing. As a result, random assignment to treatments, control groups, and use of inferential statistics generally are not appropriate for action research dissertations. However, because your readers may wish to draw inferences about the applicability of the innovation and the outcomes, a careful description of the setting and participants and the innovation is particularly important. We now turn our attention to the first of these as we consider the setting and participants.
The Study’s Setting and Participants

In describing the setting in which you will conduct your dissertation and the participants, provide information in a rich, comprehensive fashion. Information you may wish to incorporate into this section includes: the research design features, which in our dissertations are action research and mixed-methods methodologies. As noted earlier, random assignment to treatments, control groups, and inferential statistics generally are not appropriate for this action research dissertation because it is not concerned with generalizability, universal principles, or hypothesis testing. By comparison, you do want to provide information about the setting in which your dissertation will take place. Information about the setting is useful for the reader to better understand the context in which your dissertation study will take place. In addition, you will want to provide detailed information about your participants—elementary-, middle-, or high-school students, college-aged students, teachers, faculty members, parents, etc. who will be involved in your action research dissertation. In many cases, you may be working with only one group of participants. Describe that group with respect to its characteristics that are necessary for the reader to understand your subsequent interpretations. For example, what were their academic skills like? How capable were they as writers or mathematics students, etc.? How were participants sampled? Was it a convenience sample or was the sample selected in some other manner? What were the participants’ ages? What was the ethnic make-up of the sample? What was the distribution of participants with respect to gender? Also do not forget to include yourself as a participant researcher. In what follows, we first present setting and participant information from a study that examined the development of writing skills among teacher candidates.

Context and Participants

This action research study took place at a large urban university in the southwestern United States. The participants were 14 preservice teachers in their first semester of an Elementary Education program. This was a convenience sample because the participants were students in my courses. The preservice teachers were all undergraduate students enrolled in EED 433 Language Arts Methods, Management, and Assessment, a required course that provides techniques and strategies for teaching writing skills to elementary school students. The class consisted of culturally diverse students who ranged in age from early 20’s to late 40’s, including three students pursuing a second career as a teacher. Participants included 12 female and 2 male students. Their writing abilities ranged from a basic level of proficiency to an above average proficiency, with the majority of students writing at just above a basic level of proficiency. Their perceptions of themselves as writers ranged from weak to strong with the majority of students perceiving themselves at a midpoint in the range. Participation in the study was voluntary with no consequences for non-participation and no privileges or rewards for participation. All 14 students enrolled in the course chose to participate.

Here is a second example, which includes only one group of participants. This study focused on cooperative learning among community college students taking an algebra class.
Setting and Participants

The study occurred during the fall 2012 semester at a community college in the southwestern United States. The participants were diverse in age, ethnicity and educational background. The community college is a designated Hispanic Serving Institution (HSI). According to the Hispanic Association of Colleges and Universities (HACU), a HSI is defined as an academic institution with a minimum of 25% Hispanic enrollment that includes both full-time and part-time students. During the spring semester of 2010, enrollment was 7,269 with 34% Hispanic, 10% African American, 5% Asian, 1% American Indian, 40% White and 10% students identified as other.

The participants were 22 out of 30 students enrolled in a sixteen-week introductory algebra course. Although all thirty students enrolled in the course participated in the activities related to the innovation, data presented represents only 20 who agreed to participate in the study and were present during pre- and post-test data collection. The course was scheduled twice a week for one hour and forty minutes. The age distribution of the participants was split with fifty percent of the participants between the ages of 15 and 24 and the remaining half older than 24 years of age. Gender was predominantly female with 77.3 percent female and 22.7 percent male. Five different ethnic categories were identified with 9.1 percent American Indian, 9.1 percent African American, 40.9 percent Hispanic, 27.3 percent Caucasian, and 13.6 percent other. Participants had various academic backgrounds ranging from recent high school graduates to those who have been away from an academic environment for more than one year.

Initially, students in the course were randomly divided into eight groups. Six of the groups had four members and two groups had three members. During the semester, the groups were re-arranged twice into heterogeneous groups based on ethnicity, gender and mathematical ability in order for students to have the opportunity to interact with other members of the class.

By comparison, some studies will include several different groups of participants. In one recent study, participants included a group of first-year alternatively certified teachers, mentors who worked with them, and nationally board certified teachers who allowed the first-year teachers and their mentors to visit and observe their classrooms. In the final example, participants included first-grade students, their parents, their teachers, nine bilingual school parent liaisons, nine Title I teachers, and the action researcher. In some instances, dissertators have written about their roles in the setting and participants’ sections and others have written a separate section on the role of the researcher. Nevertheless, the role of the researcher should be clearly explicated as part of the method section.
selected as the sample for this study was the influence of early literacy skills on later academic success. Further, selection of first-grade parents attested to the important role parents can play in student learning as they partner with the classroom teacher at the beginning of elementary education.

Approximately 230 families participated in this action research study. Typically, mothers were the primary participants in school involvement activities. Over 65% were work-at-home mothers with an average of three children per family. Over 85% of parents were monolingual Spanish speakers. For this reason, school meetings were conducted in English and Spanish with interpretation offered by the school parent liaison. Consistent with district demographics, 65% of the parents who participated had less than an eighth-grade education, 20% had some high school education, 14% completed high school, and only 1% had college degrees. Parents were predominantly Mexican immigrants and approximately 70% were undocumented.

Nine teachers were involved in APTT. All nine teachers were female, English speakers, with an English as a Second Language (ESL) Endorsement, which qualified them to teach English language learners. The participating teachers had between three and fifteen years of teaching experience and 25% had a Masters degree.

Approximately 230 first-grade students took part in APTT. Of the sample, 85% were Hispanic; 5% were White; 5% Indian; 5% African American; 48% female; 52% male; and 90% received free or reduced lunch. In first grade, 75% of students in the district were primarily Spanish speakers in the English Language Development program. For this reason, they received four hours of English instruction per day as required by state law. Parents’ personal accounts led me to estimate that about 70% of students in the district were American citizens, whereas, 30% were undocumented.

Nine bilingual school parent liaisons, one from each school, participated in APTT. School parent liaisons were full-time classified staff members whose primary responsibility was to implement parent involvement programs at each school. In this district, school parent liaisons received six hours of group professional development per month. Parent liaisons ranged from 25 to 45 years of age and their experience in the field ranged from one to seven years. Seven of the nine liaisons lived within district boundaries and were parents of students who attended district schools.

This action research project also used the assistance of nine Title I facilitators, one from each school. Their primary role in the school is to serve as compliance monitors for Title I and Program Coordinators. They also assisted parent liaisons and the schools with implementing parent involvement programs. They were essential in this area of programming because of their valuable knowledge of grade-level academic skills and their teaching and training experience. They were between 30 and 58 years of age, and they all had more than seven years of teaching experience. All nine Title I facilitators were Caucasian, monolingual English speakers so they worked collaboratively with parent liaisons to assist the classroom teachers in interpreting during parent-teacher team meetings.

As the Director of the Community Education Department for the district, my role was to ensure successful implementation of parent involvement programs that positively affected student achievement across the district. As director, researcher, and developer of APTT, I was involved in delivering the APTT professional development to all participating staff. I participated in many of the parent-teacher team meetings. I also personally interviewed parents,
teachers, and students. As a bilingual member of the implementation team, I was available to communicate with parents, teachers, school administrators, Title I facilitators, and school parent liaisons to clarify any questions or concerns. As an employee of the district for the last 13 years I worked closely with parents and I was intimately involved in paving the way for transition from the traditional model to the new model of parent involvement.

In another dissertation, the writer included a separate section about her role in the study.

**Role of the Researcher**

As the instructor of EED 433, I participated as a teacher and researcher practitioner by assessing students, providing instruction, and creating the full circling strategy, while collaborating with students in the full circling process to work toward a common goal of becoming better teachers, writers, and teachers of writing.

It should be noted that some results might be skewed by the teacher/student relationship inherent in this study. Some students may have felt obligated to participate because I was the instructor of their course. Students might also have provided inaccurate information in an effort to give a positive perception about their identities as writers rather than relating their true feelings. It is possible that they may have said what they thought I wanted to hear in an effort to please me. There is also the possibility that my own biases, either positive or negative, toward some of the participants may have affected my judgment of the data through the Halo Effect.

**Describing the Action/Innovation**

After describing the participants, including the role the researcher is playing in the conduct of the dissertation study, the writer should provide a comprehensive description of the innovation, which is being implemented in the study. Some have called the innovation the intervention or the treatment; or in action research the action. Irrespective of the term being used to designate the innovation or action, it must be described in great detail so readers can understand exactly what was being done in the innovation. The innovation must be described with sufficient detail so the reader could replicate the action in his/her won setting. Specifically, the details about the innovation should include: steps or stages of the innovation and details related to each step.

**Innovation**

The innovation for my action research study was an adaptation of a literacy strategy known as full circling. The strategy was originally used by Long (2008) to develop her students’ visual literacy so they would gain a deep understanding of historical events. Long used strong visual images to help her students establish an emotional connection to the images. Students
observed, analyzed, discussed, and wrote as they were immersed in both the cognitive and affective domains related to the visual.

In Long’s (2008) version, the first step involved sharing an authentic photograph of a person in an historical event while encouraging students to look beyond the image and imagine what might be happening with the person in the photograph. In the second step, students heard and read excerpts from related texts to provide a variety of perspectives on the photograph. During the third step, students were asked to place themselves in the photograph to observe and analyze the multiple perspectives using the multi-textual context of the photograph in much the same way they would imagine themselves as a character in a fictional story. The last step brought the process full circle as students reflected on their feelings and connections to the photograph.

Figure 4 represents Long’s (2008) full circling process.

Figure 4. Full circling process (Long, 2008).

Like Long (2008), I used a multi-step full circling process that incorporated strong visual images, discourse, and reflection. However, my process was adapted to fit the needs of my students and the course I teach. For this study the full circling process focused on finding a writing identity. There were three cycles of full circling within the 15-weeks that my class met, including identity as a teacher, identity as a writer, and identity as a teacher of writing. In the first step of each cycle, students created a strong visual image and shared what was captured in the image and why they chose the image. In the second step, students were asked to place themselves in the image and imagine what they would see, feel, and hear from that perspective. This was followed by student-led discourse to analyze how their images captured the attributes that are part of the role standards of an effective teacher, writer, or teacher of writing. In the third step, students reflected on their feelings and connections related to the image and how they saw themselves in the role of teacher, writer, or teacher of writing. Figure 5 represents the adapted full circling process.
In a second dissertation, the writer provided these details about implementing cooperative learning with her community college mathematics students.

**Innovation**

The innovation of integrating active learning strategies through cooperative learning techniques during a sixteen-week semester was the focus of my action research. At the beginning of the semester, students were randomly assigned base groups. A base group was a group of participants that were seated together for five weeks. Each base group developed ground rules for members’ expectations. Expectations from each group were shared with the entire class and general rules of group behavior were established. After the second exam, students were assigned heterogeneous groups according to mathematical achievement in the course with a mixture of high achievers with low achievers. There was one low achiever in each group. Groups were also created to ensure diversity between gender and ethnicity.

At the beginning of each class session, students were asked to complete their Member Grid for their base group. The grid contained every member’s name and a specific question for the day. Questions selected were intended to have a positive response and serve as an ice-breaker for every member in the group. The purpose of completing the Member Grid was for students to become familiar with members of their base group and to have students communicate with each other. This was also a mechanism to help create a foundation of trust between group members. What was also useful about the Member Grid was that it gave me an opportunity as the instructor to get to know something about each student. At times students would not speak much until I came around and asked them questions about their response. I would also talk about commonalities between members at the table and this usually caused students to interact with each other a little more. By midterm, students were very comfortable when talking to each other and often asked me what the question of the day was when I forgot.

During a typical class session, a brief lecture segment as well as various formal and informal cooperative activities were implemented. A lecture segment consisted of a five to ten minute lecture regarding information on a particular topic. Information covered included definitions of key terms, modeling examples, and applications. After the lecture segment, students participated in activities in informal and formal cooperative groups. One
example of an informal cooperative group is participating in paired discussions with a member at their table or a randomly assigned individual; this type of activity is known as think-pair-share. Students also participated in formal cooperative groups during the class period. Formal cooperative groups involved student roles to ensure accountability from each group member. One example of a formal cooperative group is a jigsaw. A jigsaw activity requires each member of a group to be an expert in a specific area. Each expert is responsible for explaining their concept to others in their base group. A jigsaw activity that was used on the first day of class was the syllabus jigsaw. In this activity, each group member had a particular section of the syllabus; everyone who had the same page sat together and answered questions regarding that particular section of the syllabus. Once individuals worked with others on their section, they returned to their base groups and taught syllabus content to others.

After students worked with one another in their groups, I facilitated a focused class discussion on the content. The purpose of the class discussion was to note student understanding regarding the content they experienced. This also gave students the opportunity to ask questions and discover any misconceptions regarding content. Throughout the semester cooperative activities as designed by Johnson and Johnson (1999) were incorporated into the course.

In addition to group accountability during a class session, individual student accountability was reflected on homework assignments, quizzes, exams and individual responses to questions when working with members of their group.

In the final example, the writer shares what she called the intervention (innovation), APTT, which she used to guide parents how to work effectively with their children to improve reading skills among first-grade students.

**Intervention**

APTT is a model focused on increasing student achievement by improving the quality and quantity of parent-teacher academic interaction. The program was designed to coach parents to be more engaged, knowledgeable members of the academic team by providing explicit, individual student information, establishing attainment goals for each child, modeling ways for parents to work with their child, and providing appropriate teaching materials for parents.

APTT had two main implementation components. The implementation of APTT included a 75-minute classroom team meeting that took place three times per year. The first team meeting was held during August and September 2010. The second team meeting took place in early December 2010, and the third will occur in April 2011. The scope of this action research only allowed for collection of data between August and December 2010. The team meetings were composed of six key elements.

Personal invitation—Each participating teacher sent her classroom parents a personal letter of invitation to participate in APTT. The letter explained that the purpose of the team meeting was to review important student performance data, to set academic goals together that would help their children’s success as a student, and to provide training and materials to assist parents working with the children. The personal invitation was followed up by a phone call from the school parent liaison to ensure that the invitation letter had been received and understood.

Clear and explicit student performance data—The teacher provided parents with whole-class data and with their child’s baseline data in reading, writing, and mathematics. Data were carefully explained to ensure all parents gained a full understanding of their child’s academic
standing.

Set 60-day improvement goals—The data report showed the student’s academic standing in relationship to ideal grade level performance. Based on this information, a 60-day academic goal was established for each student. This goal provided motivation and focus for parental involvement with students at home. Moreover, the teacher obtained a verbal commitment from parents to practice with the child regularly to reach the goal in 60 days.

Teacher demonstration of skills—Using visual aids, teachers modeled two or three activities and strategies for parents to use at home with the students. Teachers answered parents’ questions regarding the activities that were modeled. They also provided information about frequency and duration with respect to performing the instructional activities.

Parent practice of skills—The teacher distributed free materials and parents practiced the skills demonstrated by the teacher with other parents in the class. Sufficient time was provided for parents to feel comfortable and capable of successfully reproducing the activities.

Building a social network—On team meeting day, the classroom teacher welcomed parents and thanked them for their participation and interest in their children. Parents had the opportunity to meet and talk to other parents in the class. The teacher expressed the importance of sharing knowledge and information and how team collaboration is essential for the success of all students.

The second implementation component was a 30-minute individual parent-teacher conference that took place between September and November. Teachers scheduled parents with high need students first. More than one individual conference took place when necessary. The individual conference consisted of three key elements. The first was a student performance report. Teachers reviewed up-to-date individual performance reports with each parent. Teachers provided details about academic improvement, assessment, and any other academic details that could assist the parent in becoming more knowledgeable about how to help the student. The second key element was an action plan. Teachers and parents agreed on next steps for ensuring continuous at-home practice of skills to meet the specified academic goal. The final element was networking. Teachers and parents shared important information about students that was social, emotional, and academic in nature. The teacher reminded parents of the importance of working as a team to ensure that time, energy, and resources were collaboratively shared.

In summary, APTT addressed three major constructs that were central to parental involvement: (a) parents’ role construction of their beliefs about what they were supposed to do with respect to children’s education, (b) parents’ sense of efficacy for helping their children to succeed in school, and (c) parents’ perception of invitations, demands, and opportunities for involvement (Hoover-Dempsey & Sandler, 1997). APTT replaced the two traditional 20-minute parent-teacher conferences typically held in the fall and spring. This new parent involvement model implemented a systematic way to strengthen parent-teacher relations based on knowledge, collaboration, and commitment to students’ achievement. For the purpose of this study, student achievement was defined as students’ performance on the STEEP reading fluency tests and identification of high frequency words.
Instruments and Data Collection Procedures

Following the detailed description of the innovation, you will want to provide thorough descriptions of the instruments and data collection procedures. It is critical that you provide detailed information about your instruments and data collection procedures so the reader can follow what you did in your study, and if interested, repeat the processes you employed or modify them to suit another purpose.

In any mixed method study, a variety of data collection instruments might be used. These include, but are not limited to:

- questionnaires or surveys;
- products created or generated by the participants such as papers or projects;
- performance-based data including quiz or exam scores and so on;
- participant reflections or participant journal entries based on prompts provided by the researcher;
- audiotapes/videotapes of classroom discourse/interaction, and so on;
- one-on-one interviews or focus group interviews of participants including students, parents, teachers, or others important to the study;
- observations of participants in the natural (e.g., classroom) setting, etc.;
- researcher field notes; and
- researcher journal entries; and so on.

The nature of the data collected, and hence the instruments selected, should be consistent with answering the research questions that have been posed. Thus, a study typically includes quantitative data gathered using a questionnaire or a survey and product or performance data. Moreover, a mixed methods study typically includes two to three or four types of qualitative data such as observations, interviews, and researcher field notes or journal entries.

Whatever data collection instruments and procedures are chosen, sufficient detail must be provided so the reader can understand the instrument and the data collection process in which the instrument was used. Because you cannot include the entire instrument in the method section, it is important to include the complete instrument in an appendix. In the text, it is critical that you provide the reader with some examples to illustrate the nature of the instrument (like a questionnaire or interview items). Usually by including one to three carefully chosen items for each instrument you can provide the reader with a clear sense of the nature of the instrument. In some dissertations, the data collection process is described in conjunction with the instrument; whereas in others the instruments are described in one section and the data collection processes are detailed in a following section.

In the following examples, we provide illustrations of the instruments and data collection processes employed in our dissertations. For example, the following excerpt provides information about a parent survey.

Parent survey data consisting of pre- and a post-intervention were gathered. Parents were asked to fill out the initial survey during the first team meeting in August or September 2010. In December 2010, parents completed the post-intervention survey.
The pre-intervention survey consisted of five main constructs with four to nine questions each. These items measured parents’ perceptions about (a) the friendliness of the school environment, (b) communication with the school, (c) involvement in education activities, (d) relationship with teachers, and (e) their role in education. For example, with respect to the topic of perceptions of parents’ role in education, one question was, “I am responsible for maintaining communication with the teacher.” One item from the scale that assessed parents’ perception about communication with the school stated, “The school sends me information of parent events that I can attend.” See Appendix A for the complete pre-intervention instrument.

The post-intervention survey was identical to the initial survey with one additional nine-item section dedicated to measuring the six key elements found in the APTT program: (a) being personally invited to participate, (b) building a social network, (c) having clear and explicit student performance data, (d) setting 60-day academic goals, (e) observing teacher demonstration of skills and parent practice of skills, and (f) two questions related to satisfaction with the program. For example, one of the questions was, “Having team meetings with other parents in the class was a positive experience for me.” See Appendix B for the post-intervention survey. The surveys were designed using a four-point Likert scale with responses of 4 = strongly agree, 3 = agree, 2 = disagree, and 1 = strongly disagree.

In another dissertation, details about a mathematics content assessment and a self-efficacy survey are provided.

**Mathematics Content Assessment**

To measure mathematics learning 15 multiple-choice items were used to assess students’ algebraic knowledge (See Appendix A). Items for this assessment were taken from Martin-Gay’s, *Beginning & Intermediate Algebra, 4th edition* (2009), which is the textbook for the course. The items were scored 1 = correct answer and 0 = incorrect answer, with one correct answer available out of four possible choices. The items measured eight course competencies: (a) solving two-step equations, (b) solving equations with variables on both sides of the equation, (c) solving multi-step equations involving the distributive property, (d) solving ordered pair solutions, (e) graphing linear equations, (f) calculating slope (g) finding the equation of the line and (h) solving problems modeled by a system of two linear equations. This assessment was administered twice during the semester in the first and last class periods.

**Self-Efficacy Survey**

To measure student self-efficacy, 20 items adapted from the Mathematics Motivated Strategies for Learning Questionnaire (MMSLQ) were used (Liu & Lin, 2010). The items were rated using a five point Likert scale from 1 = Strongly Disagree to 5 = Strongly Agree. The survey measured four constructs: (a) self-efficacy, (b) self-regulation, (c) peer learning and (d) help seeking. In addition, nine items for demographic classification were included. This survey was administered twice during the semester during the third and last class periods. The complete survey is provided in Appendix B.
In terms of describing qualitative data that were collected in our illustrative dissertations, we offer the following examples. For the first example, we have found that a Timeline for the study assists dissertators in keeping the whole data collection process in mind and clarifies the process for the reader, as well, so we have included for instructional purposes.

**Qualitative data.** Five types of qualitative data were gathered. Field notes from APTT meetings were collected. Teacher interviews were conducted with all nine teachers. The interview had nine semi-structured questions designed to gather information related to the three research questions and to learn about APTT based on the experiences of the teacher. Two examples of items are: “What are your impressions about setting academic goals with parents for students?” and “Tell me about academic student performance related to participation in APTT?” See Appendix C for all the interview items. Interviews lasted between 40 minutes and one hour. The interviews were digitally recorded and then transcribed.

Parent interviews were conducted with a total of 18 parents, two from each classroom. The interview had ten semi-structured questions designed to gather information related to the three research questions and to learn about APTT based on the experiences of participating parents. Two examples of items were: “What experiences are you having as a member of the Academic Parent-Teacher Team in your child’s classroom?” and “What kind of information do you receive when you attend APTT meetings?” See Appendix C for the parent interview questions. Interviews took place at the school and lasted between 30 and 50 minutes. The interviews were digitally recorded and then transcribed.

Student interviews were conducted with 18 students. These 18 students were the children of the 18 parents who were interviewed. Interviewing students and parents in the same family shed light on how the program affected families. The student interview had eight semi-structured questions that were designed to learn about parent involvement in education based on the experiences of the students. Two examples of items were: “What do you do at home when you are with your parents?” and “Is there anyone at home who helps you with schoolwork?” See Appendix C for the student interview questions. Interviews lasted between 10 and 20 minutes and took place in the school at a time that did not interfere with instruction. The interviews were digitally recorded and then transcribed.

Data consisting of teacher reflections were gathered. Reflections were written by the teachers after each parent-teacher team meeting to tell the story from their perspective of what took place during each APTT group session. The reflections were gathered electronically. The reflections were informal and personal in nature; they aimed to capture the mood or tone of the meeting, parent participation, interaction with parents, parent interaction with other parents, areas for improvement, and any other experiences that seemed unique.

Table 1 provides a summary of the actions undertaken to conduct the APTT procedures and the data collection process.
### Table 1

**Timeline of the study**

<table>
<thead>
<tr>
<th>Sequence</th>
<th>Actions</th>
<th>Procedures</th>
</tr>
</thead>
</table>
| August to September 2010 | • Recruitment of all participants for the project  
• Training for teachers  
• Training for parent liaisons  
• Parent pre-intervention survey  
• Gather STEEP and HFW baseline data  
• Teacher sends invitation letter to parents  
• First team meeting and 60-day goals  
• Scheduling of individual parent-teacher conference  
• Collect first round of teacher reflections | • Consent forms and letters distributed  
• Workshop for teachers  
• Workshop for liaisons  
• Data collected  
• STEEP and HFW testing done  
• Ready-made letter template  
• Meetings conducted  
• Meetings scheduled  
• Teacher reflections collected |
| August to December 2010 | • Individual parent-teacher meetings | • Meetings conducted |
| November 2010    | • Teacher interviews  
• Parent interviews  
• Student interviews  
• Teacher sends second invitation letter to parents  
• Evaluate interviews | • Interviews conducted  
• Interviews conducted  
• Interviews conducted  
• Invitation letter sent  
• Coding and themes developed |
| December 2010    | • Gather STEEP and HFW data  
• Second team meeting and 60-day goals  
• Parent post-intervention survey  
• Collect second round of teacher reflections | • STEEP and HFW testing done  
• Meetings conducted  
• Data collected  
• Teacher reflections collected |

Although not in Table format here is another dissertation in which the researcher collected four types of qualitative data.

**Math Reflections**

To measure student self-efficacy and attitudes toward mathematics, participants completed two reflective mathematics journal entries (See Appendix C). The first journal entry was assigned as homework after the second class meeting. Participants wrote both
their mathematics autobiography and a description of their most recent math experience. The goal of this journal entry was to gather information regarding previous mathematics classroom pedagogy, current attitude towards mathematics, and self-reflection of mathematical ability.

The second journal entry was assigned as homework during the last week of the semester. This entry included information regarding current mathematical experience, attitude towards mathematics and self-reflection on mathematical ability. The purpose of the pre- and post-intervention math reflections was to note any changes in attitudes and mathematics self-efficacy during the semester.

**Student Interviews**

Three students were interviewed at the end of the semester to capture student reactions to cooperative learning groups, perceptions of mathematics problem solving ability and help seeking strategies. These three were selected on the basis of academic grades with the selection of one high achieving student, one average student and one lower achieving student. The purpose of selecting students at different levels was to determine whether different themes would arise depending on achievement level.

**Focus Group**

Twelve students were selected randomly to participate in two separate focus groups at the end of the semester. Due to scheduling conflicts, only nine students participated. Students were selected on the basis of high and low academic ability; one focus group contained five students and the other focus group contained four students. Students responded to prompts regarding their experiences in the course. Focus group prompts relating to experience working in cooperative groups, impact on learning and help seeking strategies were discussed with participants. External facilitators conducted the focus groups in order to ensure student anonymity. The focus group facilitators were English faculty members. The services of facilitators provided a safe environment for students. Participating in a safe environment allows students to be comfortable speaking honestly regarding their opinions of the course. Focus group sessions were audio taped. Student focus group questions are provided in Appendix E.

**Observation**

One classroom observation was videotaped to observe student-to-student interaction in cooperative learning groups. Only students who agreed to participate in the study were included in the video. The purpose of the observation was to note whether students demonstrate the five elements of cooperative learning groups as indicated by Johnson & Johnson (1999). The observation allowed me to record student behavior and compare the level of student class participation to behavior demonstrated at the beginning of the semester. Beginning semester student behaviors were recorded as personal notes through self-reflective journal entries. The classroom observation took place during the eighth week of the semester as a mid-semester check. The observation was performed to note whether any changes were needed in the structure of cooperative learning activities. The classroom observation instrument was a mixed methods data collection tool; qualitative and quantitative data were captured through observer notes as well as documented frequencies of the five cooperative learning elements. Through observations, student frequency of the five elements
of cooperative learning was recorded. Two external observers with experience in cooperative learning strategies viewed the videotapes individually and recorded individual student behavior in five minute intervals using the observation instrument. The observers were experienced in implementing cooperative learning techniques in their own teaching. The purpose for external observers was to validate the study through the use of inter-rater reliability and to control for experimenter bias. A post-observation meeting was held with the observers in order to discuss their impressions of the cooperative learning activity as well as student behaviors. The instrument has been adapted from The Cooperative Learning Observation Protocol created by Kern, Moore, and Akillioglu (2007). The observation was analyzed using quantitative and qualitative methods. The cooperative learning observation guide (CLOG) is provided in Appendix F.

Data Analysis

In the next portion of the Method Chapter, the writer should provide information about data analysis procedures that were employed. Details about the quantitative data analyses procedures might include such things as the type of quantitative analyses conducted. For example, was a paired-sample (dependent) t-test used to examine pre- and post-intervention scores? Alternatively, was a repeated measures analysis of variance used to assess differences between pre- and post-intervention scores? If the sample size was small, were descriptive statistics employed to describe the results of pre- and post-intervention data?

Similarly, the writer should offer information about the nature of the qualitative data analysis processes used. Again, what was the nature of the qualitative procedures that were used? For example, was a grounded theory approach used? Or was a narrative or phenomenological approach utilized?

First, we provide examples from our illustrative dissertations about quantitative analyses that were employed.

**Quantitative data analysis.** Quantitative data were analyzed by comparing pre- and post-intervention self-efficacy results and pre- and post-intervention assessment results on mathematics content. Construct scores for self-efficacy, self-regulation, peer learning, and help seeking were computed on the self-efficacy survey as the mean of responses to the items targeting the construct. As a reliability measure, Cronbach’s alpha was calculated for each construct and the entire survey. Paired-sample t-tests of the pre- to post-intervention data were conducted to determine the effect on the innovation on each of the constructs.

The mathematics assessment means were compared to examine changes in learning content. The content assessment measured eight course competencies: (a) solving two-step equations, (b) solving equations with variables on both sides of the equation, (c) solving multi-step equations involving the distributive property, (d) solving ordered pair solutions, (e) graphing linear equations, (f) calculating slope (g) finding the equation of the line and (h) solving problems modeled by a system of two linear equations. Content area
Scores were computed as the total number of items in each content area that were scored as correct. Paired-sample t-tests comparing pre- to post-intervention test scores were conducted to determine the effect on the innovation on each of the competencies.

In another dissertation, the following quantitative analysis section was offered.

**Quantitative analysis.** The STEEP and HFW test scores were used to assess any changes in student early literacy proficiency. Scores from August and November tests were compared to determine whether changes in academic growth occurred in student reading fluency and student ability to read and write HFW. … The pre- and post-intervention parent surveys were utilized to determine whether there was an influence of the APTT intervention on parent involvement practices, beliefs, and parent efficacy as related to student academic progress. Repeated measures analysis of variance (ANOVA) and means and standard deviations for the pre- and post-intervention parent survey scores were presented to examine and describe parents’ attitude, beliefs, and perceptions of the program. These results were used in conjunction with the qualitative data to attain a better understanding of the influence of APTT on student learning. Use of pre- and post-intervention data allowed for the examination of changes over time.

This same writer continued and described her qualitative analysis procedures in the next portion of her dissertation where she indicated.

**Qualitative analysis.** Qualitative data were used to augment the quantitative analysis. These data, including field notes from selected APTT meetings, parent interviews, teacher interviews, student interviews, and teacher reflections provided data related to parent involvement beliefs and practices that added another level of depth to the present study. A grounded theory approach was used to uncover emerging themes based on the qualitative data.

The qualitative data were analyzed to determine if there were patterns and themes using the constant comparative method (Strauss & Corbin, 2008). Open coding, the first level of analysis was used to review the data from parent interviews, teacher interviews, student interviews, teachers’ reflections, and jotted descriptive field notes from 16 parent-teacher team meetings. At the coding level, information was labeled and categorized. The second level of analysis was axial coding. At this level, repeated patterns or properties that connected the codes from the observations, interviews and reflections were organized into larger categories.

At the third level of analysis, I pondered and reflected on the two previous levels of analysis and developed a deeper level of insight about these categories by constructing theme-related components from which themes emerged and upon which assertions were based.

After … member checks were conducted with the various groups that provided interview data. The member checks were carried out with 5 of the 9 teachers, 10 of 18 parents, and 10 of 18 students.

Another writer summarized her qualitative methods succinctly when she wrote the following brief, but informative section.
**Qualitative data analysis.** The constant comparative method (Strauss & Corbin, 1998) was used to analyze the qualitative data; including responses to interviews, mathematical reflections, focus group notes and observation notes. Through the constant comparative method, open and axial coding was employed to identify themes. Once themes were determined, categories were created that represent phenomena related to the data. Once categories were created, quotes from interviews, mathematical reflections and the focus group were used to support themes. Theme-related components were established and the themes emerged from the data. Components were reviewed repeatedly until reaching saturation. After reviewing themes and theme-related components, assertions were established. Dedoose, an online qualitative analysis software program was used to facilitate this process. These qualitative data were used to support and complement the quantitative data results.

**Threats to Reliability and Validity**

In any presentation of the Method section for a research study, it is imperative that the writer present information about threats to the reliability and validity of the study. For example, when conducting action research, the researcher may be well known to participants. As a result the researcher may have undue influence on participants such when participants ‘want to please the researcher’ or ‘give her the answer she is seeking.’ Thus, it is critical that the researcher considers and discusses biases or other influences the researcher may have over participants.

One example of the issues related to reliability and validity was adroitly summarized by one writer when she penned the following brief section on these matters.

**Reliability and Validity**

Several precautions were taken to enhance reliability and validity. One type of reliability refers to the consistency of a measure. In other words, a measure should be replicable or repeatable, and results should remain nearly the same over time (Plano Clark & Creswell, 2010). Validity is the extent to which an instrument measures what it is intended to measure (Plano Clark & Creswell, 2010). Member checks were used to review open and axial coding data on discourse transcripts and reflective journals to ensure credibility and trust of qualitative data. The major threats to validity in my study were the Hawthorne Effect and Experimenter Effect.

**Hawthorne Effect**

The Hawthorne Effect was a concern for this study since participants were the students in my class. They may have felt obligated to stay in the study and may have given positive responses during discourse and on surveys because I was the instructor of the course. To maximize validity, I used community-building activities to create an environment of trust in the classroom. I continually encouraged students to give honest responses during discourse, journal writing and on surveys, reminding them that there were no consequences for their responses. I also reminded them that their accurate responses were important.
for the validity of the research study. I kept field notes and a reflective journal on student behaviors related to the study and analyzed them for evidence of the Hawthorne Effect.

**Experimenter Effect**

Experimenter Effect was also a concern in this study. As much as I tried to remain neutral to the events in the classroom, I may have still unintentionally sent signals that could have biased the study. Students may have felt obligated to give responses they thought I wanted based upon my unconscious or unintentional verbal or non-verbal signals. To maximize validity, I used member checks to cross check codes for discourse and reflective journals. I also analyzed discourse tapes after each session to monitor any possible bias reflected in my tone of voice or any remarks I might have made during discourse in an attempt to alleviate as many distractors as possible. Throughout the study, I provided rich descriptions in field notes and in my reflective journal as part of an audit trail to provide documentary evidence of the steps and procedures related to my research study.

Another writer considered the same issues when she authored a section on threats to validity and the actions she took to overcome those threats, which we have included in the section that follows.

**Threats to Validity**

There were three threats to validity in my action research study; these threats were (a) history, (b) testing and (c) experimenter effect. A description of how each of these threats was accounted for is presented below.

**History.** History may impact my study by students that may be repeating the course. Students who have completed higher level mathematics in high school may perform poorly on the placement exam due to lack of test preparation. These students may not want to retest and may remain in the course. These students already understand the material thus posing a threat to validity. To control for this threat, a question on the self-efficacy survey will be included to identify students that have been previously exposed to course content.

**Testing.** Testing may impact my study since a pre and post-test will be administered during the course. The pre-test may impact post-test results since students may practice test taking strategies. This threat was accounted for by rearranging the order of questions and number values in mathematical problems.

**Experimenter effect.** Due to my interest that students excel in my course, experimenter effect was a threat to validity. To adjust for this threat, I maintained professionalism, and made a conscious effort not to have personal bias with respect to students participating in my study.
Closing Thoughts on Chapter 3

Chapter 3 provides information about the methodology you will use or used to conduct the study. Information about setting and participants, the innovation or intervention, instruments, data collection procedures, data analysis processes, and concerns about reliability and validity must be thoroughly presented. Further, it is critical that this information is presented in sufficient detail so the reader can follow the processes with minimal questions. The results and interpretations rendered in the next chapter and the discussion of those results in the final chapter will only make sense to the reader if s/he thoroughly understands the efforts in which you have engaged as described in the Method chapter.
Chapter 4: Analysis and Results

In writing the dissertation, the chapter in which you present the results is substantially different than the way results are presented in a research article. For instance, in the dissertation, you would provide information about the data analysis procedures along with the actual outcomes of your data. Moreover, since our students are expected to conduct their dissertations using mixed methods approaches, they typically describe the quantitative procedures followed by the results of the analysis of the quantitative data. Following the analysis and results for the quantitative data, students then present information about the qualitative data analysis procedures and the results obtained from those analyses. Details with respect to those processes and the resulting outcomes are presented in what follows.

Introducing the Analysis

To illustrate the combination of quantitative and qualitative analysis processes and reporting of the results, consider the following example from one dissertation.

Quantitative data results from a pre and post Teacher/Writer Identity survey are presented in the first section. Results include numerical data from a construct analysis of survey items and a comparison of pre and post means. Qualitative data results follow and include interpretive outcomes from three cycles of classroom captured in discourse, student reflective journals, field notes, and my own personal reflective journal. These data sources were triangulated to provide validity and corroborate findings from quantitative and qualitative data sources (Creswell, 2009; Greene, 2007).

In another dissertation, the researcher offers the following account at the beginning of her chapter on data analysis and results. Note how this serves as an advance organizer for the reader to understand the larger scope of the data analysis processes.

Results from the study are presented in two sections. In the first section, results from the quantitative data are presented. Following the results for the quantitative data, results for qualitative data are presented. For the qualitative data, assertions are presented and supported through theme-related components and quotes from participants. Prior to presenting the results, a brief section outlining the data sources and data collection procedures is offered to provide some context for the presentation of the results.

The quantitative data included: parent survey results, pre- and post-test scores for high frequency words, and pre- and post-test scores for reading fluency. Pre-intervention and post-intervention surveys were administered to parents to gauge their perceptions about parent involvement in education… This pre- and post-intervention assessment process allowed for the examination of change on these variables over the course of the project. Quantitative data from the questionnaire were analyzed using repeated measures analyses of variance (ANOVA) procedures. Similarly, pre- and post-test scores for high frequency words and pre- and post-test scores for reading fluency were analyzed using separate repeated measures analyses of variance (ANOVA) procedures.
The qualitative data included: parent interviews, student interviews, teacher interviews, teacher reflections and jotted descriptive field notes from 16 parent-teacher team meetings. Qualitative data were also collected in 18 parental interviews—two from each classroom, 18 student interviews—children of the 18 parents who were interviewed, and nine teacher interviews. Interviews lasted approximately 45 minutes for teachers and parents and 15 minutes for students and they were digitally recorded. Additionally, 18 teacher reflections were coded and analyzed. Each teacher wrote two open-ended reflections (one after each parent-teacher team meeting) on their feelings and perceptions about what transpired before, during and after each meeting. Qualitative data were collected during parent-teacher meetings using jotted notes (Sowell, 2000).

The qualitative data were analyzed using the constant comparative method (Strauss & Corbin, 1998). In that procedure, open coding was initially conducted to identify ideas and concepts from the transcripts of the meeting, field notes, interview sessions and the teacher reflections. Subsequently, those open codes were gathered into larger categories using axial coding. Those larger categories led to theme-related concepts that suggested themes, which emerged from the data. The themes and theme-related components were examined and assertions were developed.

Explaining the Reliability of the Quantitative Measures

Prior to reporting the results for quantitative data it is appropriate to conduct reliability analyses on the instruments and report some measure of reliability. Usually, Cronbach’s alpha reliability coefficient is appropriate for this purpose. When alpha reliability coefficients exceed .70, the instruments are considered to be reliable (Nunnally, 1978). The following excerpt from one of our exemplar dissertations appeared in the dissertation just prior to the statistical analysis of the quantitative data gathered using the five subscale measures on a survey of parent involvement.

Reliability of parent involvement survey. The pre- and post-intervention survey used to evaluate parents perceptions about their participation and involvement in the schools consisted of five subscales, which assessed their perceptions of: (a) the school environment, (b) communication with the school, (c) school involvement activities, (d) relationships with teachers, and (e) role in the education of their child. Items on each of these subscales are clearly delineated in Appendices A and B for the pre- and post-test occasions. For each subscale, Cronbach’s α was computed using SPSS to determine the reliability of the subscale. Based on the pre-test responses, the reliabilities for the subscales listed above were: .88, .92, .90, .93, and .93, respectively. The reliability for the perceptions about experiences with APTT, which was assessed only at the post-test, was .95. These reliability coefficients were substantial and attest to the reliability of the five subscales and the experiences with APTT subscale.

Reporting Data Analysis Procedures and Results for Quantitative Data

In the sections that follow, we explain and illustrate procedures associated with quantitative data analysis and their attendant results. Again, it is important that the reader clearly understand your data analysis procedures and the results you obtained for the quantitative data.

Report descriptive statistics for small sample sizes.
In some studies, where the sample size is small, the use of descriptive statistics is the most appropriate data analysis procedure. Thus, students would describe statistical processes that led to the descriptive statistics they are reporting based on the quantitative data they gathered. The use of descriptive statistics is illustrated in the following example from a dissertation that was conducted with only five alternatively certified teachers who were being mentored by five retired educators. The scores were for three types of teacher efficacy beliefs measured on the Teachers Sense of Efficacy Scale (TSES; Tschannen-Moran & Woolfolk Hoy, 2001).

The researcher examined the data from the TSES assessment to develop an understanding of how teachers’ efficacy was altered through participation in the CREATE professional development. Each of the constructs in the instrument was analyzed.

Classroom management. The eight-item student engagement subscale mean for the CREATE group pre-test assessment was 4.40. It rose to 6.30 [on a 9-point scale] on the post-test assessment. … The intervention group showed a 43% increase in the area of classroom management ….

Instructional strategies. On the eight-item subscale that assessed instructional strategies, the mean pre-test score for the CREATE group was 4.40. … The CREATE group showed a 47% increase in the percentage score from the pre- to post-test appraisal with a score of 6.45.

Student Engagement. The final sub-scale of the TSES survey also consisted of eight items, which measured teacher efficacy in regards to student engagement. The CREATE group began with an initial mean of 4.68 and increased to 6.48 on the final assessment, an increase of 38%.

For larger samples, where sample sizes range from 12 to 15 or more, statistical analyses are appropriate, when pre- and post-intervention data (commonly called pre- and post-test data) are available. In such cases, the use of dependent t-test procedures, also called paired t-test procedures, or repeated measures analysis of variance procedures are appropriate. For example, in one dissertation, the dependent t-test was employed to assess differences between pre- and post-intervention data. A representative sample of material from that dissertation for two of the constructs related to self-efficacy beliefs about mathematics presented in the following illustration.

Self-Efficacy for Mathematics Results

Paired samples t-tests at \( \alpha = .05 \) were conducted to compare pre- and post-intervention mean scores of the four constructs included in the survey. Self-efficacy had a significant improvement with \( t(19) = -2.881, p = .009 \). Table 1 displays t-test results for pre- and post-survey constructs. Prior to the use of cooperative learning groups, students tended to disagree that they had strong mathematical ability (M = 2.71, SD = 0.47). After exposure to cooperative learning groups, student attitudes increased slightly in their perceptions of their mathematical ability (M = 3.00, SD = 0.53).

The self-regulation construct measured student attitudes regarding the ability to be in control of their own learning by investigating challenges they may have with course content. Self-regulation was not significant with \( t(19) = 0.289, p = 0.775 \). This construct was comprised of four items. Prior to my innovation, students would independently resolve their challenges on their own (M = 4.08, SD = 0.16). After the innovation there
was no significant difference in student attitudes (M = 4.05, SD = 0.32).

In another dissertation, a large group of parents completed pre- and post-intervention questionnaires that reflected five different constructs related to parent involvement.

**Results from parent involvement survey.** As noted previously, 92 of 165 parents completed both the pre- and post-intervention survey of parent perceptions of involvement. A preliminary analysis showed there were not significant differences on the pre-test scores between those who completed both surveys and those who completed only the initial survey. In fact, differences on the pre-test scores for these two groups of participants were quite small, ranging from 0.02 to 0.09 points.

Five individual repeated measures ANOVAs were conducted, one for each of the five subscales of the parent involvement survey. For perceptions about the school environment, the repeated measures ANOVA was statistically significant, $F(1, 91) = 6.05, p < .016$. The effect size for this measure was $\eta^2 = .062$, which was a small effect size for a within-subjects design based on Cohen’s criteria (Olejnik & Algina, 2000). Pre- and post-test means and standard deviations for the school environment variable and the other four subscales of the survey are presented in Table 2. The repeated measures ANOVA for perceptions about communication with the school was statistically significant, $F(1, 91) = 6.65, p < .012$. The effect size was $\eta^2 = .068$, which was a small effect size for a within-subjects design based on Cohen’s criteria. With respect to perceptions about school involvement activities, the repeated measures ANOVA was statistically significant, $F(1, 91) = 20.00, p < .001$. The effect size for this difference in means was $\eta^2 = .180$, which was a large effect size for a within-subjects design according to Cohen’s criteria. The repeated measures ANOVA for perceptions of relationships with teachers was statistically significant, $F(1, 91) = 27.01, p < .001$. The effect size was $\eta^2 = .229$, which was a large effect size for a within-subjects design based on Cohen’s criteria. Finally, the repeated measures ANOVA for role in educating the child was not statistically significant, $F(1, 91) = 3.42, p < .068$; indicating there was no difference between the pre- and post-intervention means for this measure.

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Pre-test M</th>
<th>SD</th>
<th>Post-test M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>School Environment</td>
<td>3.50</td>
<td>0.47</td>
<td>3.64</td>
<td>0.44</td>
</tr>
<tr>
<td>Communication with School</td>
<td>3.51</td>
<td>0.45</td>
<td>3.66</td>
<td>0.43</td>
</tr>
<tr>
<td>School Involvement Activities</td>
<td>3.34</td>
<td>0.52</td>
<td>3.63</td>
<td>0.42</td>
</tr>
<tr>
<td>Relationship with Teachers</td>
<td>3.26</td>
<td>0.58</td>
<td>3.60</td>
<td>0.42</td>
</tr>
<tr>
<td>Role in Educating Child</td>
<td>3.68</td>
<td>0.39</td>
<td>3.77</td>
<td>0.36</td>
</tr>
</tbody>
</table>

To sum up, depending on the sample size, various procedures were used to analyze the quantitative data. For small sample sizes, even with pre- and post-intervention data, descriptive data were presented. By comparison, when pre- and post-intervention data were available and
sample sizes were modest, say 12 to 15 or more, and for large samples inferential statistical processes were conducted with the quantitative data and these results were reported, as noted above.

**Reporting Data Analysis Procedures**

In the sections that follow, we explain and illustrate procedures associated with reporting qualitative data analysis procedures and the findings obtained. This is a dissertation so it is very important that your reader clearly understand your qualitative data analysis procedures and the results, which follow from your analyses. This is especially true for qualitative data because of the wide variety of interpretive procedures used in qualitative analyses and because interpretive procedures may be less familiar to the readers.

First, provide some context about the qualitative data including what kind of qualitative data were collected and the amount. In the following excerpt, we demonstrate how the researcher provided context for her qualitative data.

In this mixed methods study, … The qualitative data sources included student discourse, student reflective journals, two open-ended question responses on the Teacher/Writer Survey, field notes, and my personal reflective journal. Table 6 shows the richness of this data set.

<table>
<thead>
<tr>
<th>Data Source</th>
<th>Word Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identity as a Teacher Discourse Transcription</td>
<td>3,161</td>
</tr>
<tr>
<td>Identity as a Writer Discourse Transcription</td>
<td>3,759</td>
</tr>
<tr>
<td>Identity as a Teacher of Writing Discourse</td>
<td>6,585</td>
</tr>
<tr>
<td>Student Reflective Journal 1</td>
<td>4,067</td>
</tr>
<tr>
<td>Student Reflective Journal 2</td>
<td>4,113</td>
</tr>
<tr>
<td>Student Reflective Journal 3</td>
<td>2,728</td>
</tr>
<tr>
<td>Survey Open-Ended Question 1</td>
<td>529</td>
</tr>
<tr>
<td>Survey Open-Ended Question 2</td>
<td>675</td>
</tr>
<tr>
<td>Field Notes</td>
<td>4,625</td>
</tr>
</tbody>
</table>

Table 6 contributes to the credibility of the data and will later offer support for the assertions.
Each data source was analyzed using a grounded approach [Corbin & Strauss, 1998]. After you provide the amount of data collected provide a description about the nature of the qualitative analysis procedures used. For example did you use a grounded theory approach? Or was it some other type of approach? Did your initial codes emerge from the data? Or were your codes pre-determined and based on the literature or theory that supported your research efforts? This information is important to the reader to help them understand how you arrived at your themes and assertions. Moreover, did you employ a specific qualitative data analysis computer tool such as Dedoose, HyperResearch, or NVivo to aid you in analyzing your data? The following excerpt addresses these matters.

“Analysis is the interplay between the researcher and the data” (Strauss & Corbin, 1998, p. 13). The researcher began the analysis process by reviewing all transcripts, question responses, and journal entries. The researcher then employed a software program HyperRESEARCH Qualitative Analysis Tool v. 3.0.3 (Researchware, 2011) to assist in the coding process. Open coding was the initial step in the analysis of the qualitative data. The researcher separated the raw data and developed a preliminary list of concepts, ideas, and meanings (Corbin & Strauss, 2008). From these initial codes, larger categories were derived as relationships were identified. The researcher analyzed and reflected on the larger categories and identified theme-related concepts and were continually revised throughout the analysis process to reflect influences of the multiple data sources.

Reporting Results for Qualitative Data

We have found that a summary table of the interpretations of the qualitative data serves as an organizing framework for the dissertator when s/he is writing and as an advance organizer for the reader (Buss, 2014). Note that the organizing summary table below includes theme-related components, which are developed by grouping lower level codes into the component emerging themes, which are based on the theme-related components and assertions, which are derived from the themes and theme-related components (Buss, 2014; Buss, Wetzel, Foulger, and Lindsey, 2014; Wetzel, Buss, Foulger, and Lindsey, 2014). We provide two examples of the use of these qualitative summary tables with slightly varying formats for the benefit of those who are considering the use of such an approach in their writing. The excerpt from the first dissertation is provided below.
In the analysis of the qualitative data sources 95 total codes were identified. Codes were further grouped into five themes. See Table 4. The themes were: (a) parent teacher communication; (b) parent engagement; (c) teacher efficacy in leading classroom parent engagement; (d) student engagement, confidence and learning performance; and (e) academic parent teacher teams as a school model for parent involvement in education. Table 4 provides a breakdown of the themes, theme-related components, and assertions associated with each theme.

Table 4  
Themes, Theme-related Components and Assertions

<table>
<thead>
<tr>
<th>Themes* and Theme-related Components</th>
<th>Assertions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Parent-teacher communication</strong></td>
<td></td>
</tr>
<tr>
<td>1. Sharing whole-class and individual student data during team meetings was a new experience for parents and teachers alike.</td>
<td></td>
</tr>
<tr>
<td>2. The increased time for communication and collaboration was academically targeted.</td>
<td></td>
</tr>
<tr>
<td>3. Teachers provided parents with increased awareness of student data and grade level learning objectives.</td>
<td></td>
</tr>
<tr>
<td>4. Parents appreciated receiving coaching and take home materials provided at parent-teacher team meetings.</td>
<td></td>
</tr>
<tr>
<td>5. Parents and teachers were on the same page about academic expectations and target grade-level performance.</td>
<td>The quality and quantity of the academic information teachers shared with parents increased awareness and facilitated shared effort in the student learning process.</td>
</tr>
<tr>
<td><strong>Parent engagement</strong></td>
<td></td>
</tr>
<tr>
<td>1. Parents demonstrated commitment to implement activities and use materials shared by teachers during team meetings.</td>
<td>Parents welcomed teachers’ invitations to be involved and to be held to a higher set of expectations for engagement because coaching and support were provided.</td>
</tr>
<tr>
<td>2. Parents were involved in attempting to reach their 60-day goals using materials provided by the teacher.</td>
<td></td>
</tr>
<tr>
<td>3. Team and individual meetings with teachers helped parents become clearer about their role in the educational process.</td>
<td></td>
</tr>
<tr>
<td>4. Parents dedicated additional time beyond homework to studying alongside their children to attain their goals.</td>
<td></td>
</tr>
<tr>
<td><strong>Teacher efficacy in leading classroom parent engagement</strong></td>
<td>Teachers’ ability to lead and motivate their parent classroom communities was a process of adaptation, time commitment and preparedness.</td>
</tr>
<tr>
<td>1. Teacher concerns with the APTT process changed; they became advocates of the model.</td>
<td></td>
</tr>
<tr>
<td>2. Teachers’ initial perceptions of parents changed.</td>
<td></td>
</tr>
<tr>
<td>3. Teachers provided coaching, motivation and feedback to parents regularly.</td>
<td></td>
</tr>
</tbody>
</table>
4. APTT made life easier for a teacher when parents shared in the responsibility; the time spent preparing for meetings paid dividends.

**Student engagement, confidence and learning performance**
1. Parents individually helped and encouraged students with homework and studying to meet academic goals.
2. When students and parents learned how to go beyond homework, academic improvement was evident earlier in the year.
3. Students were aware of their own academic goals and engaged in monitoring their progress.
4. Increased student practice at home, motivation and confidence lead to mastery of academic goals.

Many students met or exceeded academic expectations with confidence when parents and teachers created collaborative structures of support.

**Academic Parent Teacher teams as school model for parent involvement in education**
1. Parent-teacher communication was more regular and it was focused on academics.
2. Sharing group and individual data and communicating with all parents at once created a community with one vision.
3. Parents and teachers preferred the APTT model over traditional conferences.
4. Setting academic goals promoted motivation and engagement.

APTT provided the additional time and structure teachers needed to share expectations, data, activities and materials that parents needed to be engaged in the student learning process.

*--Note: Themes are in italic print.

In a second dissertation, a student used a variant approach as illustrated in the text below.

Themes and assertions emerged from qualitative data collected from journal entries, interviews and focus groups. Table 3 displays the themes, theme-related components, and assertions.

Table 3
**Themes, Theme-related Components, and Assertions**

<table>
<thead>
<tr>
<th>Themes</th>
<th>Theme-Related Components</th>
<th>Assertions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Returning Students’ Anxiety</td>
<td>Students were anxious about returning to school after an absence of several years.</td>
<td>Students returning to school face unique challenges including insecurity and low self-esteem.</td>
</tr>
</tbody>
</table>
Students who were away from school for several years expressed low self-confidence and insecurity.

Students who had been in school acknowledged classmates who had been out of school for years.

**Help Seeking Strategies**

Prior to participating in cooperative groups, students sought help by asking questions in class and by going to tutoring.

After being exposed to cooperative learning, students searched for resources in order to complete their homework or supplement their learning.

**Themes**

<table>
<thead>
<tr>
<th>Theme-Related Components</th>
<th>Assertions</th>
</tr>
</thead>
<tbody>
<tr>
<td>complete their homework or supplement their learning.</td>
<td></td>
</tr>
<tr>
<td>After being exposed to cooperative learning, students mentioned helpful classmates not only at their table but also everyone in class.</td>
<td></td>
</tr>
</tbody>
</table>

**Communication**

Students met outside of class once they began communicating with each other.

Students would contact their peers first before contacting their instructor.

All students became involved in class even if they had been shy.

Communication through cooperative learning activities creates safe learning environment and positive student interactions that go beyond the classroom.

**Student perceptions of math**

Students went from Participation in cooperative
disliking math to enjoying the subject. Learning activities contributed to students having a greater acceptance of math.

Confidence was gained in mathematics.

Students liked math at the end of the semester compared to disliking math at the beginning of the semester.

In the sections of the dissertation following the summary table, these students described their assertions and explicated them by describing the theme-related components and substantiating their claims with responses (quotes) from participants or other evidence from the qualitative data. An example of this writing approach used by the writer of the dissertation (who provided the first summary table) to explain her assertions and theme-related components follows.

**Parent-teacher communication.** Assertion 1—The quality and quantity of the academic information teachers shared with parents increased awareness and facilitated shared effort in the student learning process. The following theme-related components were found to substantiate the theme leading to this assertion: (a) sharing whole-class and individual student data during team meetings was a new experience for parents and teachers alike; (b) the increased time for communication and collaboration was academically targeted; (c) teachers provided parents with increased awareness of student data and grade-level learning objectives; (d) parents appreciated receiving coaching and take-home materials provided at parent-teacher team meetings; (e) parents and teachers were on the same page about academic expectations and target grade level performance.

Parents and teachers participated in two 75-minute team meetings and a 30-minute individual conference. Communication was important for both parents and teachers. Teacher #6 appreciated added time to interact with parents and said, “The biggest thing is just having more time to interact with parents, to explain everything in detail” (Teacher interview, November 1). In many instances, parents and teachers reported communicating more regularly for the purpose of clarifying questions and to give feedback on student progress. The extended time for communication and nature of the communication led parents to feel they were more informed. They had greater awareness of what was expected by the teacher and a better understanding of grade-level learning objectives that needed to be mastered by the student. Parents, teachers and students made numerous comments in support of this contention. Parent #6 expressed this perspective when she affirmed, “The information the teacher gives me helps very much. If I didn’t go to the meeting, if I didn’t get this information from the teacher, who would help me? Nobody else gives me explanations on how to help my son” (Parent interview, November 1).
Participants showed appreciation of the additional time used to share information. They felt this approach was positive and different. Teacher #2 reported changes in her relationships with parents when she commented, “My communication with parents is totally different than in past years. The parents know what questions to ask and I think that’s the key, before they didn’t have any clue where to start” (Teacher interview, October 29). Parent #3 indicated her satisfaction with increased communication when she noted, “What helps you most is the communication with the teacher, if you know how your child is doing and what academic areas need studying (sic) because the teacher is communicating with you” (Parent interview, November 9).

Students were also cognizant of the increased communication between parents and teachers. Student #12, observed how his mom and the teacher interacted and he described it by saying, “My mom and my teacher talk. They talk about school” (Student interview, November 11).

This dissertation writer went on to describe other theme-related components and provided responses (quotes) to substantiate her claims. Then she moved on to her other assertions and followed the same process of systematically providing information to buttress her assertions and theme-related components by providing quotes and other information from field notes, etc.

Several Important Matters about Reporting Qualitative Data

In addition to the above there are a few more things you must consider when reporting your qualitative results. First, if you are using mixed methods you should offer your assertions, present the convergence and consonance as well as divergence and dissonance among your data sources. Include disconfirming results when appropriate to fully represent the complexities of your action research results.

Second, by its nature qualitative data are extensive. As a result, the section on qualitative data may be quite lengthy and is typically much longer than the section in which quantitative data are presented. Reports of the qualitative data may be 10 to 20 or 30 pages in length depending on the “richness” with which the data are presented.

Closing Thoughts on Chapter 4

Chapter 4 provides information about the analysis procedures and the results or findings you obtained. Information about the analysis procedures must be thoroughly presented so the reader can readily understand your results. In particular, you must make clear the interpretive processes you used to analyze your qualitative data. Further, you must clearly substantiate your claims for the qualitative data with sufficient evidence to support them.
Chapter 5: Discussion

Discussion sections are a critical part of the action research dissertation because in it you will have an opportunity to explain the significance and relevance of your work. In addition, you can explain the observed results/outcomes and discuss the implications for practice and further research. Importantly, the discussion sections of action research dissertations vary and reflect the individual interests and preferences of the researcher, her/his faculty member chair, and committee. For example, some writers include a “closing word,” whereas others do not. Others writing their discussion sections include a portion on personal lessons learned during the dissertation process, while others do not. Nevertheless, we offer the following suggestions to direct the writing of this portion of this closing chapter of the dissertation.

Even though there may be variation, we suggest the following components be included in the discussion section of an action research dissertation: (a) a discussion of the complementarity of the quantitative and qualitative data; (b) a discussion of the results in relation to the extant literature and/or theoretical frameworks; (c) a discussion of personal lessons learned or your own growth through the action research process; (d) a discussion of lessons learned; (e) a discussion of limitations; (f) a discussion of implications for practice; and (g) a discussion of implications for research or next steps in the next cycle of action research. An optional, final section might be a “closing word” or conclusion.

Discussion of the Complementarity of the Quantitative and Qualitative Data

First, when researchers conduct action research studies that employ mixed methods, the discussion should include information on the complementarity of the quantitative and qualitative data (Greene, 2007). As Greene notes, complementarity refers to the extent to which each type of data complements the other. So the initial part of the discussion should provide information about how the qualitative data support the quantitative data. If there is disconfirming evidence, this should also be discussed. To illustrate the discussion of complementarity, consider the following excerpt from one dissertation.

**Complementarity and Integration of Quantitative and Qualitative Data**

Results from the quantitative and qualitative data sets demonstrate complementarity, thus providing a broader and more enhanced interpretation allowing for greater confidence in the inferences made from this study (Greene, 2007). The exit ticket surveys following each intervention presentation session included open ended questions to gather supporting qualitative data to elaborate on TPB survey responses. Having this data on student’s perceptions as well as how they were affected by the intervention provided a more complete and comprehensive understanding of the factors that influence students’ decisions to pursue or not pursue teaching as a professional career (Greene, 2007). The quantitative and qualitative data are complementary in a number of areas. First, scores on the attitudes toward the behavior, pursuing teaching as a profession, reflect the concerns about teaching exemplified in the status theme from the qualitative data. Issues with respect to salary and job status that were present in the qualitative data were also evident in the quantitative data.
Quantitative data related to the influence of others on students’ decisions to pursue a career in teaching is less clear. Specifically, the path coefficient for the subjective norm variable of the quantitative data is not significant. In the present study, this result may occur because students are less willing to say they are influenced by parents/teachers/close friends/media on the TPB questionnaire items. This hypothesis stems from the way the items were written. Students may not be willing to say they are influenced by parents/teachers/close friend/media because students may not “care what others think”. Given that the items are written using that kind of language, students may this hypothesis was formed. Thus, for example, the representative item, “Generally speaking, I care which profession my parents encourage me to pursue” may not elicit the typical response found in other TPB research relating to influence from important others and the idea of social norms. Nevertheless, the qualitative data indicate parents’ influence is important in choosing teaching as a profession. As observed in the qualitative data, many parents discourage their high achieving daughter/son from pursuing teaching, whereas, a much smaller group of parents encourage the pursuit of teaching as a career.

Finally, quantitative scores on the perceived behavioral control variable from the TPB show that students had some concerns about their ability to manage students, deal with parents, etc. These results are consistent with the qualitative results, which show lacking skills and confidence to teach and manage a classroom and demonstrating inability to successfully interact with students and parents are barriers standing in the way of selecting teaching as a profession.

Taken together, the qualitative data are quite complementary to the quantitative data. The qualitative data provide greater depth to the quantitative data and allow for a better understanding of the numerical data.

Discussion of Results in Relation to the Extant Literature or Theories

Following a discussion of the complementary nature of the quantitative and qualitative data, a discussion of how the results are connected to the literature and/or theoretical perspectives is instructive. This section should include a description of how the literature or theoretical framework(s) help to explain the results or how the results are similar to those of previous studies. We have selected excerpts from several of our model dissertations to illustrate this type of discussion.

The purpose of this research study was to investigate and address my students’ identities as teachers, writers, and teachers of writing. Over the past several years the preservice teachers I worked with expressed concerns about their writing skills and their ability to teach writing. In prior cycles of action research I explored ways to improve preservice teachers’ writing skills; however I discovered that although skills improved my students did not see themselves as writers. Literature and research show that preservice teachers who hold negative perceptions of themselves as writers often feel uncomfortable teaching writing and may be less likely to teach writing on a regular basis (Morgan, 2010; Street & Stang, 2009). Because of this, it is important them become more effective teachers of writing (Kellogg & Raulerson, 2007; NCW, 2006; Street, 2003; Street &
Stang, 2009). The full circling process in this study allowed me to use visual imagery, discourse, and reflective journaling to help the preservice teachers I work with understand and develop their writing identities.

In another dissertation, the researcher offered the following information as she explained her results in light of the existing literature.

**Outcomes Related to Previous Research and Theory**

When considering the previous research and the [theory of planned behavior] TPB model, there are many connections between the results of this study and those from the literature although the study explored a select student population. ……

Many of the perceptions the participants hold are consistent with those observed in previous research. Consistent with the findings from the Breglio (2006) study, characteristics students value when describing the qualities of their ideal job include (a) good money/great pay, (b) challenging and fulfilling work, (c) time for family/self, and (d) the ability to make a difference in the lives of others (Breglio, 2006). The results from this study also indicate students’ value pay, fulfilling work, and making a difference in lives of others. On the other hand, students in the present study do not appear to be concerned about time for family/self. This could be because these topics were rarely touched upon in the intervention presentation sessions or as items on the surveys. ……

Having a job that is challenging and fulfilling is an important characteristic that students desire in a profession. In the present study, 89% of the participants indicate that having a profession that is intellectually demanding is somewhat to extremely important. The qualitative results vary with regard to students’ thoughts about whether or not teaching is intellectually demanding. Most students agree that they could teach the content or easily acquire the skills they need to teach certain content. However, aside from content, students indicate the challenging aspect of teaching would be dealing with students and parents as well as the amount of paperwork teachers are asked to do. Concerns about working with misbehaving children and dealing with unsupportive parents are also predominant responses in the Hall and Langton (2006) study and were also true for this research study. Consistent with the literature, students in this study strongly value a fulfilling profession. One of the primary qualitative codes in this study indicates students describe teaching as self-fulfilling and rewarding. ……

Several components of the TPB model have a close relation to the aforementioned perceptions held by students. Student’s behavioral beliefs and attitudes towards the teaching profession greatly affect their intention to choose teaching as a profession. Behavioral beliefs link the behavior of interest, in this case choosing teaching as a profession, to the expected outcomes (Azjen, 1985; 1991; n.d.; see also Fishbein & Azjen, 2010). Students expected outcomes, specifically relating to the primary influences mentioned above, tend to dominate the secondary influences, which leaves students with a negatively valued attitude about the teaching profession and little intention to pursue it.

Self-efficacy as initially proposed by Bandura (1986) and elaborated by Lent et al. (1994) in Social Cognitive Career Theory (SCCT) are the control beliefs and perceived behavioral control variables in the TPB model (Azjen, 1985; 1991; n.d.; see also Fishbein & Azjen, 2010),
which are related to students’ pursuit of teaching as a profession. Control beliefs have to do with the perceived presence of factors that facilitate or impede performance of a behavior (Azjen, n.d.). These control beliefs lead to perceived behavioral control, which refers to people’s perceptions of their ability to perform a given behavior. In this study there were mixed perceptions about control beliefs. Students perceived that they could easily acquire or already had the skills necessary to teach content but their concern regarding being able to deal with parents and students impeded their intention to choose teaching.

Discussion of Personal Lessons Learned (optional, but recommended)

This section is a bit unusual and it is not included in most dissertations. Nevertheless, in action research dissertations, it is an important part of the discussion because of the central role the researcher plays in the whole action research process. In any doctoral program, growth of the student occurs in many areas including expertise as a leader, proficiency as a practitioner, and aptitude as an action researcher. CPED (2010) promotes this idea as part of their definition of a Dissertation in Practice, that is the culminating experience that demonstrates the scholarly practitioner’s ability to address problems of practice, the Dissertation in Practice exhibits the doctoral candidate’s ability “to think, to perform, and to act with integrity” (Shulman, 2005). It also aligns with Principle 4: Provides field-based opportunities to analyze problems of practice and use multiple frames to develop meaningful solutions. As noted at the beginning, an action research dissertation can be more than writing a large document. It can be a transformative experience and a way to develop leadership capabilities (Furman, 2011; 2012). Thus, it is appropriate that development of those skills connected with the action research dissertation be briefly considered in the discussion section as illustrated in the following excerpt.

Personal Lessons Learned

As a result of this study, I can carry several personal lessons I have learned into practice and research in the future. The most important lessons pertain to: (a) the advantages of conducting a mixed methods study and (b) the importance of grounding a study in a theoretical framework.

Advantages of conducting a mixed methods study. Conducting a mixed methods study allows me to better understand the phenomenon of this study (Greene, 2007). By gathering and integrating quantitative and qualitative data I am able to more deeply examine participant’s perceptions and views. I can also identify which portions of the intervention most directly affect students’ overall intention to teach. Using a mixed methods approach allows me to integrate the quantitative and qualitative findings and make stronger, more valid claims with respect to the data. ……

Grounding the study in a theoretical framework. Initially, in my own thinking about this research area, I did not look at the matter with a theoretical framework in mind. I had long thought about the main issues of the study. Having previously been one of those students with negative perceptions of the teaching profession, I have often sensed that others have the same perceptions and barriers that keep them from choosing this field of which I have grown so fond. Through conducting the literature review for this study however, I found very little on this topic. What I did find typically lacked
grounding in theoretical frameworks. To illustrate, much of the work on career choice has been conducted without benefit of theoretical frameworks, especially when researchers conduct studies to examine the factors that influence students’ selection of teaching as a professional career. For example, Breglio’s (2006) and Block’s (2008) studies, which examine factors that facilitate or impede students’ pursuit of teaching as a profession were conducted without use of a theoretical framework.

At the onset of this doctoral program, I began to explore various theoretical frameworks. It took going through about seven frameworks and applying them to the study before I came to the [theory of planned behavior] TPB model. Once I was able to fully apply the TPB model and use it to guide my development of data collection tools and the intervention, the study became much clearer. I learned about the power of a theoretical framework to inform a research-based study. More importantly, I learned that getting to this theory takes time and patience. Finally, and importantly, I learned that theory can and should provide a framework for planning and conducting the study.

**Discussion of Lessons Learned about Implementation of the Action**

Including a discussion of lessons learned is a critical component of the discussion section of an action research dissertation. Understanding these lessons and making them clear to the reader establishes the foundation for implications for practice and implications for research.

**Lessons Learned through Implementation**

Several lessons were learned as this study was implemented. Data revealed the importance of having a non-evaluative resource. This was one of the key lessons learned from this study. As stated in the literature, Danielson (2007) described the role of mentors as “a friendly critic, or just a patient listener.” The non-evaluative role of the [retired mentor teacher] RTM led to more trusting relationships with the assigned [alternatively certified teacher] ACT. The ACT were willing to share their problems and concerns with the RTM, and turned to the RTM for personal and professional advice. RTM provided more emotional and personal-based support early in the study, but then subsequently focused more on professional support as the ACT teaching self-efficacy increased throughout the study.

Another lesson learned was the value of having a differentiated type of professional development. Findings indicated that the ACT were more invested and focused because they were able to select areas of their instruction that they believed to be most relevant. As Mary expressed, “It’s really hard for me to wrap my mind around somebody stopping in for five minutes and then telling me what I need to improve, whereas I am with my kids and I know where I need to focus” (Post-interview, December 12, 2012) ……

Collaboration was identified as being a critical factor in influencing the development of the first-year ACT. Collaborating with professionals possessing various levels of expertise was valued by the novice teachers, and led to their increased teaching self-efficacy. This was evidenced in the data regarding both constructs of the study. ACT appreciated the dyadic collaboration that they had with their assigned RTM, and they also benefited from the collaborative opportunities that the CORP group provided with the RTM and [nationally board
certified teachers] NBCT. This again mitigates the isolation that so many first-year teachers experience.

An unanticipated finding was that the first-year ACT participants did not know what they did not know. Study data reveals numerous references to this idea. ACT participants expressed the desire to want to improve their teaching practice, but they did not know how, or whom to turn to for advice. “I have days where I don’t have support and I have so much left to plan, and I don’t know how I am going to change what I’m doing, and how I am going to plan for the next day (Molly, Pre-intervention interview, August 21, 2012).

Alternatively certified teachers do not have the same experiences or education as traditionally certified teachers, and as a result often do not have the ability or knowledge to implement or modify instruction during their early classroom practice. Mary exclaimed:

Sometimes you don’t know what you don't know … I’ve never been in a classroom. I didn’t know what a seven-year-old was until a month ago. It’s hard to be a teacher when you don’t know what a teacher looks like, or acts like, and it felt very unnatural. I need resources. If you tell me to use a graphic organizer and it’s not a Venn diagram I have no idea what it is. I’ve never learned it. I’ve never used it (December 12, 2012).

Another researcher offered these interpretations of lessons she had learned from her students during her dissertation work.

**Lessons Learned**

Several students came into my class with fear of and an attitude of dislike towards mathematics. A frequent comment that I heard throughout the semester was that students liked learning that they were not the only ones struggling with the subject. Challenges in mathematics were faced in the company of their peers. It appeared as if struggling inspired students to help each other. As students communicated and helped each other, they developed a strong bond among each other as a community. As members of a community, each participant worked together to help each other succeed. Within the classroom community, students developed a great sense of compassion for each other. One student interviewed commented, “We don’t want anyone to fail.” Another student mentioned how they would miss their classmates and their instructor.

One student referred to the members of her base group as a family. Another student talked about her classmates by using the term friends. ……

One conversation I had with a student demonstrated how students communicated with each other regarding the course. While he was home on a Sunday afternoon, classmates continually called him regarding the assigned math homework. This student interaction demonstrates how students continued working together outside of class. Working on class content outside of class will help students complete their courses and increase their likelihood of academic advancement. ……

One personal observation I had was realizing how much students value instructors. The teacher is essential to creating a positive learning environment. Students frequently mentioned having a caring instructor. For students it is important to have a caring instructor who wanted them to succeed. “This is the first teacher that actually cares and actually really tries.” A caring instructor motivates students to be proactive in their learning. ……

Students felt comfortable in class. “I’ve never been in a class where you can feel comfortable enough to raise your hand or talk to somebody.” There was a preoccupation
regarding impressions from peers at the beginning of the semester. At the end of the semester, students mentioned that they were never afraid to be criticized by others. “Not being afraid of what kind of reaction we are going to get from asking a question.” Experiencing the freedom to ask questions, results in higher student achievement.

Student responses prior to the innovation and after the innovation mentioned their most positive experiences were when they had an instructor who wanted them to succeed and inspired their learning. ……

Discussion of the Limitations

Incorporating a discussion of limitations is very beneficial because it clearly indicates to the reader that you have carefully reflected on the weaknesses and shortcomings of your own research efforts. In the limitations may also want to stipulate the limits that are inherent in action research. Excerpts from our selected dissertations demonstrate how the researchers described their limitations.

Limitations

There are limitations to this action research study. The most significant limitation is the brevity of the study, which took place during the fall semester of 2012. Although this was a limitation for the final cycle of the study, results from the pilot study provide additional evidence that indicate benefits of the CREATE professional development model, particularly the mentoring component. This could be attributed to the additional time that the mentor-mentee dyads had to develop relationships during the two-semester period of the pilot study in A second limitation of the study is the small sample size. Because there were only five [alternatively certified teacher] ACT participants, the power of any quantitative statistical data analysis is severely limited. Further, with only five participants in the intervention group, use of typical statistical analysis tests were not warranted, thus only descriptive statistical data were presented for the quantitative measures. Although this was a limitation in the analysis of the quantitative data, it allowed the researcher to delve deeper when analyzing the qualitative data. The researcher was able to minimize this limitation through triangulation.

History and maturation presented potential threats to the internal validity of this study. The use of a naturally occurring comparison group helped to minimize most effects of these threats, with respect to TSES, but not the other data sources. Based on the TSES quantitative results, an additional threat to validity was regression toward the mean. Specifically, data for the five ACT was problematic with respect to this issue. The five ACT mean pre-test scores on the TSES were substantially lower than the comparison group mean for all three variables thus, changes in the TSES scores of the intervention group might be accounted for by regression toward the mean as opposed to the intervention. As mentioned in the results and analysis, the use of an additional subgroup of 7 first-year ACT with similar pre-test scores helped to mitigate this limitation.

The role of the researcher as the clinical instructor for the first-year ACT participants presented the potential for bias. To decrease this threat, the researcher documented thoughts and reactions throughout the intervention in a research journal. Artifacts were also collected to
develop an audit trail. Additionally, a colleague conducted the pre-intervention interviews of the five primary ACT participants.

In another dissertation, the writer offered the following limitations when she wrote.

**Limitations of the Study**

As with any research study, there are limitations that should be noted. This study used a non-random purposeful-convenience sample that limits the generalizability of the results. In addition, the n in this action research study was small (n = 14) which may have affected the outcome. With the limited number of participants, the discourse timeframe was very manageable and provided an opportunity for all of the preservice teachers to participate in each discourse session. Discourse could prove to be problematic with a large number of participants in a limited timeframe.

The Hawthorne Effect was a concern for this study since participants were the students in my class. They may have felt obligated to stay in the study and may have given positive responses during discourse and on surveys because I was the instructor of the course. To maximize validity, I used community-building activities to create an environment of trust in the classroom. I continually encouraged students to give honest responses during discourse, journal writing, and on surveys, reminding them that there were no consequences for their responses. I also reminded them that their accurate responses were important for the validity of the research study. I kept field notes and a reflective journal on student behaviors related to the study and analyzed them for evidence of the Hawthorne Effect.

Experimenter Effect was also a concern in this study. As much as I tried to remain neutral to the events in the classroom, I may have unintentionally sent signals that could have biased the study. Students may have felt obligated to give responses they thought I wanted based upon my unconscious or unintentional verbal or non-verbal signals. To maximize validity, I used member checks to cross check codes for discourse and reflective journals. I also analyzed discourse tapes after each session to monitor any possible bias reflected in my tone of voice or any remarks I might have made during discourse in an attempt to alleviate as many distractors as possible. Throughout the study, I provided rich descriptions in field notes and in my reflective journal as part of an audit trail to provide documentary evidence of the steps and procedures related to my research study.

The most significant limitation was the length of the study. This study took place over the 15 weeks of a college semester, a relatively short period of time to expect major shifts in a writing identity. When students have had negative experiences in writing, it is difficult to counteract experiences that they have carried with them since childhood (Norman & Spencer, 2005). The negative experiences shape their belief systems and values and influence how they approach learning (Lave & Wenger, 1991; Lortie, 1975; Pajares, 1992). Although the preservice teachers in this study demonstrated positive shifts in their writing identities, it is not known if increasing the longevity of the study could have provided an opportunity for more profound growth in writing identity.

These two examples clearly illustrate the thoughtful consideration given by the researchers to their work, especially to the restrictions impinging on their efforts. They also alert the reader to give careful consideration as she determines whether and how these factors limit the development of practice implications.
Discussion of Implications for Practice

It is critical for the dissertation writer to describe the implications of the action research dissertation for practice. After all, the premise on which the action research dissertation is based is to improve some aspect of practice. Thus, some statements about the inferred consequences for practice are clearly warranted as part of the discussion of the outcomes of the dissertation. Again, we have selected excerpts from several dissertations to illustrate the implications for practice sections.

Implications for Practice

Through the implementation of [Academic Parent-Teacher Teams] APTT I have learned that most parents genuinely want to help their children succeed. In order to help parents successfully work with their children at home I need to give them the tools and information necessary to empower them and hold them accountable for their child’s learning. I have learned that individually we are not nearly as successful as we are when we work as a team (Teacher #1, November 1).

Teacher implementation of the APTT model for parent involvement produces multiple benefits that far exceed the expectations of parents and teachers. Evidence of its influence resonates in the quantitative and qualitative results. All students, especially minority students in urban schools, benefit greatly when parents and teachers intentionally work collaboratively to create structures of support. The APTT model offers a simple, yet comprehensive framework for parent-teacher communication and parent involvement that delineates participants’ roles and helps eliminate barriers commonly associated with low parent involvement in schools. This student-centered, alternative model for parent involvement represents a paradigm shift. It is designed to involve all parents and improve the achievement of all children in the classroom. APTT replaces school-centered, non-academic parent activities with academically aligned home-A new system that builds on a unified, home-school interconnected parent involvement approach. .... The APTT model allows parents and teachers to concerted channel their influence to produce measurable results in student learning. Moreover, trust between parents and teachers is strengthened when all demonstrate sincere commitments to remove barriers that stand between children and academic success.

The nine teachers in this action research study are utilizing parent involvement as a powerful instructional strategy. This new interpretation of parent involvement as an instructional strategy is profound and practical because it provides a path for continuous improvement and it places parents who are the main stakeholders, in the middle of the educational process. Consistent with all powerful instructional strategies, its effectiveness requires ongoing reflection, evaluation and refinement. In addition, the effective use of student data as a catalyst for concerted action leads to academic gains being achieved by students.

To ensure high quality implementation of APTT, teacher training, time for planning, preparedness and administrative support is required. .... Consistent with other important instructional strategies, teachers need expert training and support to master these abilities. …
APTT, which serves as a conduit that fosters effectual congruence is a realistic alternative to traditional parent-teacher conferences. Reconfiguring how parents and teachers find solutions together for continuous student improvement establishes a new vision and culture for learning and achievement.

A final implication for practice that requires careful consideration is the current use and definition of parent involvement by educators. Parent involvement is commonly considered to be the actions parents take in response to broad invitations made by schools. In other words, schools consider parents to be involved when they participate in parent-teacher conferences, school committees, volunteering opportunities, decision-making, especially when they attend social events at the school. Unfortunately, these activities do not focus on academic matters. Good parent involvement is not commonly associated with the amount of time and effort parents dedicate to helping their children with schoolwork and school preparedness. Well recognized, parent involvement programs have evolved in response to these commonly held assumptions and beliefs about ideal parent behavior. Results from this study suggest a potentially effective new approach to parent involvement in education. The efforts the school makes to create parent involvement need to be more precisely directed. Results from implementation of the APTT model suggest parent involvement efforts should be student-centered and be applied first at the classroom level to ensure parents and teachers become confident and effective partners and that effectual congruence is developed to support student learning.

In another dissertation, the writer offered a more personalized viewpoint when she presented the following comments in her implications for practice section.

**Implications for My Practice**

I will continue to use cooperative learning in my classroom. Community building activities will continue to be integrated in my courses so that students can learn about one another and trust can be established among group members. This part of the cooperative learning strategy is helpful for students to feel safe and comfortable asking questions during class and among their peers. …..

One aspect of cooperative learning in my classroom that I need to strengthen is group processing. Group processing was implemented in activities but not to the extent that it could have been. I believe that group processing is vital for cooperative learning groups to be able to view each of its members as a valuable part of a team. It provides the group with an opportunity to reflect and analyze how they can become better as a group as well as improve as individuals in order to positively contribute to the team.

Following student recommendations, I will integrate more algebraic applications in the course. Students felt very strongly about being able to see how algebra is used in relation to their lives. If students understand why algebraic concepts are used, they are more likely to be interested in the topic and be more motivated to learn specific concepts.

Through this action research cycle, I have learned that I did not define clear objectives for using an observation protocol. Although my external observers were provided an orientation on the use of the protocol, the results of the observations information provided yielded results that were suspect. Both observers determined that there was 100% engagement during class, an unlikely outcome. If I was using observation in a similar manner in a future study, I would be sure that the observers clearly understood both the purpose and the use of the observation protocol.
The implementation of cooperative learning techniques in my course has inspired other faculty in my division and in other disciplines to learn more about incorporating the strategies in their courses. As a result of my action research, other faculty have expressed an interest in attending the summer cooperative learning institute I attended prior to my last action research cycle. Having other faculty learn about best practices in cooperative learning and integrate the methods in their courses will provide our students with a different learning experience. It will also help students improve their communication and social skills.

**Discussion of Implications for Research**

Following the discussion of implications for practice, we suggest the dissertation writer discuss the implications for research or next steps in the next cycle of action research. Given that researcher/writers are conducting action research, thoughtful consideration of and reflection on the results from the previous cycle of action research leads to thoughts about the next action to be undertaken in the next cycle of action research process. For example, what (if anything) would you do differently? Also, consideration of your next step(s) would be appropriate information for this section. Sharing these thoughts is a powerful way to conclude the dissertation and encourage the reader to share your vision about the next action you will take.

An example from one dissertation illustrates the nature and scope of this discussion about implications for research, when she wrote.

**Implications for Future Research**

Future research is warranted based upon lessons learned from this study. Stringer suggests that action research is strengthened when it is replicated in various contexts (2007). Studies that explore similar models of professional learning for novice first-year teachers in different settings are recommended.

The researcher recommends future studies that include larger samples in an effort to show more significant results. “The influence of sample size on the power of statistical tests is critical” (Creswell, 1994, p. 34). The statistical power increases as the sample size increases. The small sample size of the intervention group in this study did not allow for statistical analysis.

The use of technology would eliminate the need for face-to-face observations, and would provide a means of scaling up this model to reach a potentially larger target group of teachers. As mentioned in the findings, observation scheduling presented a significant problem for one dyad in this study. By incorporating technology, geographic and scheduling challenges would be minimized. A study that investigates including video-taped lessons of [National Board Certified Teachers] NBCT, followed by virtual collaborative discussions focused on [System for Teacher and Student Advancement] TAP indicators through a technology platform is one recommendation.

The researcher also recommends the possibility of embedding a similar model into coursework whereby the instructor could take the role of the [retired teacher mentors] RTM. Evidence from this study also suggests that further work be done to recruit and develop the recently retired master teacher group to provide a resource for first-year teachers. This is a resource that is widely untapped, but has the potential to significantly influence the development.
of novice teachers. The researcher again recommends the use of technology to support this endeavor.

In another dissertation, a student took a slightly different approach to writing about implications for research, when she composed the following discussion.

**Implications for Research**

Findings in my research demonstrated an increase in retention and persistence of students who were exposed to cooperative learning. In my prior experience, attendance rates were poor and low retention rates were the norm. Prior to the use of cooperative learning techniques, I had a retention rate of 50%. According to the National Community College Benchmark Project (NCCBP), national student retention at the developmental mathematics level was 57.32% for fall 2012 (NCCBP, n.d.). The retention rate of the community college district that includes the college that participated in this study was 56.18% for fall 2012. There was a retention rate of 86% for the course in my study.

With 72.7% of self-identified ethnic minority students in the course, this indicates that minority students benefit from the use of cooperative learning practices. At the end of the semester, groups of students decided to enroll together for their next mathematics class. This indicates that cooperative learning has an impact on student persistence. Further research on cooperative learning and minority student retention and persistence is worthy of exploration.

My next research question would be, “What is the relationship between cooperative learning and motivation?” After observing participants in the study, I was intrigued by how motivated students were to complete their homework, ask questions and simply learn in general. I would be interested in learning about motivation and what elements integrated within cooperative learning directly impact motivation.

For future research I would change my self-efficacy survey from a 5-point Likert scale to a 4-point Likert scale. I would remove the choice of neutral. I found that students would often select neutral and this leads me to believe that they may have wanted to finish the survey quickly. … I would also have another instructor who implements cooperative learning in their courses use the survey in order to compare responses and student success rates.

I would also incorporate interviews and focus groups at the beginning of the semester to note any changes in student attitudes regarding mathematics and cooperative learning. Further, I would include a prompt on a student journal entry that would ask specific questions geared toward student attitudes and experience with cooperative learning. This would allow me to have a baseline and observe any significant changes among student responses. Currently I do not have any information to support whether student attitudes changed regarding their opinions of cooperative learning. I only have data from the end of the semester.

In general, participants were positive and very helpful with their classmates. I believe there may be literature regarding the emotional and social component of cooperative learning. Students made connections with each other that kept them coming to class. I believe I can further investigate cooperative learning on other levels in order to improve what I have recently witnessed in the classroom. Witnessing a room of compassionate individuals who without hesitation help their peers is worth further investigation.
Research literature findings and information from prior action research cycles suggest that cooperative learning strategies promote learning and improve self-efficacy. Integrating different teaching techniques such as cooperative learning in developmental mathematics courses will provide new information for developmental education research at the community college level.

In both instances, the researcher/writer clearly conveyed information about what interests they would explore in their next cycle of action research. Many researcher/writers of dissertation end their stories here; whereas others finish with a conclusion.

**Conclusion or “Closing Thoughts” (optional)**

Some dissertators completed their dissertation with a conclusion and/or “closing thoughts.” This section affords the researcher/writer an opportunity to offer some final thoughts about the action research results. We provide two examples to illustrate the nature and content of conclusion-type sections when they were included in the dissertation.

**Conclusion**

Our nation faces the ongoing problem of filling positions in some of the most challenging urban schools and classrooms. Many schools and districts are turning to alternatively certified teachers to fill these positions. Alternatively certified teachers have limited experience and education in comparison to traditionally certified teachers, and have an immediate need for support in dealing with the complexities of classroom teaching. Feelings of isolation, lack of collaborative support, and access to exemplary instruction are areas that need to be addressed to support these novice teacher challenges. Schools and districts hiring alternatively certified teachers would benefit from professional development models to support and prepare the teachers for success in their profession.

The findings of this action research study suggest that further investigation of professional development models that include observational and collaborative opportunities are warranted. Many professional development models include observations, either face-to-face or virtually, with most being in a video format, but the collaborative discussions that follow the observations add a unique element to the CREATE model. These discussions allow the [alternatively certified teachers] ACT to ask questions of the master teacher observed based upon their individual needs, which allows the opportunity for deeper reflection of their instructional practice.

Another key aspect of this study, which is unique to this professional development model, is the inclusion of non-evaluative retired teacher mentors. The study showed notable benefits of non-evaluative mentoring relationships with experienced teachers.

**Closing thoughts from the researcher’s perspective.** This action research study has provided the opportunity for me to grow not only as a researcher, but as an educator and leader in the profession. It has helped me to delve deeper, and critically reflect on my practice. Through the implementation of the CREATE project I was able to take on the role of change agent and engage first-year teacher participants in a professional development model designed with the intent to influence their teaching self-efficacy and teaching practice. Although this was a small study, I anticipate that it will continue to influence my efforts as a teacher educator and it
is my hope that it will also influence future action research studies and professional development.

In another dissertation, the researcher/writer offered the following conclusion section.

**Conclusion**

A highly structured parent involvement model such as APTT that is implemented at the classroom level is a powerful instructional strategy that supports increased student performance. Further, the implementation of Academic Parent-Teacher Teams to improve first graders' reading fluency and high frequency word acquisition demonstrates the power of family engagement in student learning. Family engagement in education as demonstrated by this action research study, substantiates that effective parent involvement practices can provide concrete solutions to current educational reform issues. Results from this study suggest that parents and teachers who collaborate can produce fundamental change in student learning and academic performance. This outcome suggests a new window of opportunity is open for improving student performance, especially in schools serving minority students and families. This new paradigm of parent involvement in education can be best understood as a critical component of a comprehensive accountability system designed to maximize all resources available to students.

The learning and intellectual opportunities available to children away from school can have a strong influence on student achievement. This is significant because students attend school for seven hours about 180 days and are at home 185 days a year. The knowledge and capacity that parents have to influence learning and skill development at home during those non-school days are significant in students' ability to achieve. As effective classroom leaders, teachers are better able to capitalize on parent aspirations when they coach, motivate and inspire families to strive for academic excellence. With successful teacher leadership, parents can strengthen their capacity to provide opportunities for new learning at home and more expertly take their share of the responsibility for academic growth and achievement. The insights and experiences gained in this study lead to an unassailable conclusion: a more successful approach to teaching and learning is one where families and schools are systemically and sustainably interconnected to meet the monumental responsibility of educating children.

**Closing Thoughts on Chapter 5**

In Chapter 5 of this guide, we have provided information about how to write the discussion section of an action research dissertation. The discussion section is more flexible than other sections because it is based on the researcher/writer’s (and her chair’s) interpretations of how to explain the results. Further, because it is an action research dissertation, the researcher/writer can and should include sections that are different than those typically found in discussion sections of traditional research articles that are not based on action research. Thus, including sections like those suggested are appropriate for an action research dissertation, which capitalizes on effecting change in a workplace setting.
References


Grogan, M., Donaldson, J., & Simmons, J. (2007). Disrupting the status quo: The action research dissertation as a transformative strategy. *National Council of the Professors of Educational Administration Module*. Retrieved from [http://creativecommons.org/licenses/by/2.0/](http://creativecommons.org/licenses/by/2.0/)


