A Qualitative Study of Florida Tech Graduate Teaching Assistants’ Response to Coaching, Video Playback, and Coaching Paired with Video Playback with Regard to their Concerns, Self-Reflections, and Practice of Teaching

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A Qualitative Study of Florida Tech Graduate Teaching Assistants’ Response to Coaching, Video Playback, and Coaching Paired with Video Playback with Regard to their Concerns, Self-Reflections, and Practice of Teaching by Angela Marie Fennell

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ABSTRACT

TITLE: A Qualitative Study of Florida Tech Graduate Teaching Assistants’ Response to Coaching, Video Playback, and Coaching Paired with Video Playback with Regard to their Concerns, Self-Reflections, and Practice of Teaching

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Florida Tech’s campus-wide GTA professional development training, the GTA Seminar, has no clear theory on which it was designed, employs only measures of satisfaction and open-ended feedback, and performs limited follow-up on GTAs. Further, two pilot studies I conducted indicate that GTAs’ concerns may not be fully addressed by this seminar. This is notable because the GTA Seminar is often the only means of professional development available to more than half of the GTAs on campus.

The purpose of my study was to investigate 13 GTAs’ teaching concerns, self-reflections, and practice when implementing three professional development sequences during their assignments over one semester: responsive coaching, video playback, and responsive coaching paired with video playback. I used a qualitative methodology, implemented 3 rounds of the professional development sequences, and collected different forms of data. I developed case studies for each member of the 4 groups in my study (i.e., including a comparison group). These case studies
allowed me to describe each individual GTA, including his/her: background information; self, task, and impact concerns; levels of reflection; teaching practice; and apparent changes over time. Using these case studies, within-group and between-group comparisons were done to explore any influence of these professional development sequences on the teaching concerns, reflections, and practices of GTAs.

Although I was unable to detect any influence of the professional development sequences, the outcomes of my study were somewhat consistent with Fuller’s (1969) theory in that beginner GTAs had self concerns. However, all 13 participants of the professional development sequences had concurrent task concerns. There was one unique participant in each group with additional high-level impact concerns and higher levels of self-reflection. These outcomes may be grounded in the GTAs’ multi-role status, the pre-organized nature of their assignments, and their level of maturity and/or educational course history. Further, the GTAs’ feedback indicated they preferred expert consultation and appreciated the professional development sequences of the GTA Seminar and this study.
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I am truly honored to have all of these people in my life!
DEDICATION

I dedicate this to my wonderful husband, David Fennell, and the most incredibly talented poster artist in the world, Mr. Tyler Stout.
Chapter 1
Introduction

Background

A large percentage of undergraduate instruction is currently being delegated to Teaching Assistants (American Historical Association, 2000; DeCesare, 2003; Johnson, & McCarthy, 2000; Shannon, Twale, & Moore, 1998). This is noteworthy due to the tradition of higher education institutions hiring instructors with limited backgrounds in instructional training other than the content preparation in their subject area, and perhaps prior employment (Gardiner, 2000). Today as more and more people choose to attend college, the need for and responsibilities of Teaching Assistants (TAs) will continue to increase. The influx of TAs is most evident at large institutions, where full-time faculty have been choosing to teach graduate courses and/or focus on research rather than instruct undergraduate courses (Boyer, 1990). In essence, TAs have become an understated and often unseen resource in the grand scheme of the university.

Teaching Assistants have been employed since as early as 1823 in the United States (Minkel, 1987), and can be broken down into several different groups. For example, TAs include Undergraduate Teaching Assistants (UTAs) to Graduate Teaching Assistants (GTAs). GTAs may be divided further into students working on either their master’s or doctoral degree. Further, these UTAs and GTAs come from all over the world. Those from countries outside the U.S. are known as
International Teaching Assistants (ITAs). These ITAs must meet certain criteria in the written and spoken English language to become a TA. Finally, all manner of disciplines have employed the use of TAs including Biology, Business, Chemistry, Composition, Engineering, Environmental Science, Foreign Language, Humanities, Math, Psychology, and Physics (Nyquist, Abbott, Wulff, & Sprague, 1991). What all TAs have in common is that they exist so that the faculty may benefit by having more time to do research, and the students who become TAs are provided financial assistance for their degree program.

**Historical context.** When considering the preparation of TAs for their work, it is important to reflect on the history of TAs because some of the vestiges and mindsets associated with past periods in this history live on in the higher education leadership roles of today. In her historical review, Chism (1998) interpreted a four-phase pattern in this history in which universities slowly progressed in their efforts to provide professional development opportunities to TAs. The first phase spanned from the post World War II years to about 1960; no attempts were made during this time to prepare TAs whatsoever. This phase is rooted in the belief that teaching is not a skill to be learned, but a simple task of telling students what they should know. The second phase began in the 1960s and continued for 20 years when universities were employing increasingly more TAs in independent roles, which then instigated an increase of their students’ criticism of educational quality. The institutions responded to this criticism quietly by handling
the training of TAs within departments or programs. Information about these efforts was limited; it was shared in journal articles, if shared at all.

The third phase emerged in the 1980s when large institutions came together to discuss how TAs were now responsible for a large proportion of undergraduate instruction and the efforts to prepare them to teach were insufficient. This discussion was a turning point for higher education institutions as they openly and publicly admitted to these concerns and, as a result, created more centralized programs to supplement the department programs. Finally, the fourth phase started in the 1990s when multiple parties of interest outside the university, such as public officials, journalists, and citizens, became influential. They were particularly concerned about the language proficiency and employment of ITAs. Regulations, legislation, budgetary restrictions, and university policies were created during this period and continue to impact TA development presently (Chism, 1998).

Today, universities and departments have the predisposition to value research above teaching (Barrington, 2001; Blackburn, 1993). It is important to address what the university values because studies have supported the idea that what the university values, faculty and TAs also will value (Blackburn, 1993; Graff, 1994; Lumsden, 1989). Boyer (1990), DeFranco and McGivney-Burelle (2001), and Latulippe (2007) have found patterns related to institutions’ Carnegie Classifications of research productivity and the emphasis they place on teaching; institutions with a higher commitment to research productivity tended to place less
emphasis on teaching as compared to those with a lower commitment of research productivity. Although research is important, universities benefit when they also actively support the quality of TA instruction by improving undergraduate education and promoting the commitment to teaching quality in the next generation of faculty (Barrington, 2001; Graff, 1994). Latulippe (2007) further added that support does not only come in the form of training; it also can include supplies, observations and feedback, awards, and recognition.

**Professional development of TAs.** Programs designed for the professional development of TAs exist in many different forms. They can range from university-wide or departmental pre-semester orientations to one- or two-credit courses in pedagogy, or, less frequently, role modeling or mentoring (Seymour, Melton, Wiese, & Pederson-Gallegos, 2005). The professional development opportunities for TAs are typically brief and extremely general in their range of topics—usually focusing on university policies or procedures; at least 75% of these trainings last less than a week (Gray & Buerkel-Rothfuss, 1991; DeCesare, 2003). Most of these programs are general in what they cover because TAs fill numerous roles that can vary by academic unit and by position, with duties that can include: grading homework, lab reports, essays, papers, and exams; recording attendance and grades; preparing quizzes and exams; proctoring exams; producing handouts; providing class and lab instruction; and sometimes even assuming the entire responsibility for a course. TAs also fulfill their appointments in different settings
such as labs, lectures, discussions, and in the field (Nyquist et al., 1991). Although most universities attempt to train their TAs for teaching, rarely do the topics address evidence-based teaching practices that have been informed by learning theory.

**Theoretical frameworks.** Of the theories that have been applied to TAs and their development, a large proportion of them are rooted in pre-service teacher education and research (Gorsuch, 2012). For instance, Ronkowski (1989) sought to replicate Francis Fuller’s research on teacher development models with TAs (Fuller, 1969; Fuller & Bown, 1975; Fuller & Case, 1972). Nyquist and Sprague (1998) later developed their own developmental stages for TAs based on the work by Fuller (1969). They expanded on the Fuller model by addressing how TAs’ concerns change from focus on self to skills to outcomes as well as changes in TAs’ discourse level, approach to authority, and approach to students. Ferzli et al. (2012) used the Concerns-Based Adoption Model (CBAM), also a modification of the Fuller model (Hall & Loucks, 1978; Hall, Wallace, & Dossett, 1973), to investigate how the type and amount of training affects a TA’s progression through the stages of concern. A second theory drawn from teacher education and research for use with TAs emphasizes reflective thinking or teaching practice (Doe, 2001; Ingram, 2001; Supko, 1997). These studies encourage the continuance of training and research on reflective practice with TAs. Other researchers have branched out from pre-service teacher education and research to investigate TA professional
development using Adult Learning Theory as a framework (Kinney, 2007; Miranda, 2004; Reilich, 1999). Motivational theory (e.g., Ogawa, 2008), social cognitive theory (e.g., Boman, 2008; DeChenne, 2010), active learning (e.g., Trouba, 2009), learning-centered pedagogy (e.g., Vassett, 2010), the ADDIE model (e.g., Hardre, 2002), and Reiser and Dicks’s (1996) six instructional activities are just a few of the other theories and frameworks that have been applied to the development and to studies of the development of TAs.

**Importance.** Countless studies have stressed the concern for and importance of the teaching professional development of TAs because they are one of the major pools of professionals from which future faculty instructors are drawn (Bomotti, 1994; Diamond & Gray, 1987; Luft, Kurdziel, Roehrig, & Turner, 2004; Nyquist et al., 1991; Rushin, et al., 1997). However, TAs themselves often have reported that their programs have not prepared them to take on teaching and other duties (Diamond & Gray, 1987; Golde & Dore, 2001). The importance of TA professional preparation also is evidenced by the responses of different stakeholders, including TAs themselves, to needs-assessment surveys (Commander, Hart, & Singer, 2000). Further, TAs have been shown to influence student retention in the sciences by how they contribute to the climate in laboratories, course grades, and students’ awareness of science careers (O’Neal, Wright, Cook, Perorazio, & Purkiss, 2007). Considering these and other findings,
the apparent gap between their limited preparation and the realization of these benefits is an issue that warrants concern and attention at the university level.

**Video playback and coaching for TAs.** One popular means of providing observations and feedback for instructional professional development in pre-service teacher education has been video self-confrontation or video playback. In Fuller and Manning’s (1973) review of video playback practices, the importance of character was brought to light. For instance, they found that those who facilitate self-confrontation must have CARE: Communicated Authenticity, Regard for the other person that is positive, and Empathy. It is suggested that I fit the CARE description because I have had experience critiquing TAs’ teaching in the past in a nonjudgmental, positive manner. Additionally, I can empathize with their plight because I also am a graduate student.

From the literature on theory, research, and practice, video playback and coaching could be ideal forms of theory-based instructional development for TAs because both guide them to more fully develop their self-image as a teacher. Video playback and coaching also allow for flexibility to address TAs’ concerns as they surface, address their aim to obtain the proper focus and insight on teaching practices to achieve their instructional goals, and provide them with opportunities to learn about teaching from within their experience. From this perspective, prior work in the areas of Fuller’s (1969) concerns theory, reflective practice,
sociocultural theory, and social cognitive theory all can provide guidance to different parts of the implementation of my primary study.

Fuller’s (1969) stages of concern can provide guidance as to the concerns that are eminent with TAs throughout the course of the investigation so that they may be addressed as they occur. Reflective practice theory can provide a frame to understand how TAs process the feedback they receive—video, coaching, or both. Sociocultural theory provides guidance for the conduct of the coaching. Social cognitive theory provides a frame for determining the extent of self-regulation for those not exposed to coaching.

A sizeable number of studies have looked at using video playback with pre-service teachers and higher education faculty (Calandra, Brantley-Dias, Lee, & Fox, 2009; Maclean & White, 2007; Perlberg, Peri, Weinreb, Nitzan, & Shimron, 1972; Perlberg & O’Bryant, 1968; Sherin & Han, 2004; Sherin & van Es, 2005; Stockero, 2008; Tripp & Rich, 2012a; van Es & Sherin, 2008). However, it appears that no one has explicitly investigated the use and outcomes of video playback with TAs. These groups that have been investigated have likely already formed an ingrained teaching habit or style by the time video playback is implemented and are motivated differently in relation to teaching than TAs. Thus, a study with TAs would be unique, and could offer some additional insight into the professional development of a different group of people because of their relative newness and uncertainty of a future in teaching. Therefore, there would be valuable information
to collect on the role of theory in the professional development of TAs during their actual TA experience.

**Research setting.** Despite studies of the historical periods in the use of TAs, characteristics of TAs, theories about their development, and interventions aimed at their professional development, attention to this growing body of work has been limited at Florida Tech. Perhaps of greater relevance is that studies of TA development at Florida Tech have been limited to microteaching observations during and post-workshop feedback after the biannual TA Seminar (hereafter, GTA Seminar).

In the absence of other data, two pilot studies were conducted in Spring 2012 to better understand the perspectives and concerns of Florida Tech GTAs: one with GTAs who were completing this seminar in early January and were just starting to serve as GTAs (see Appendix B); and the other with graduate students who had completed the seminar, served as GTAs for differing periods of time, and had petitioned to graduate because they were nearing the end of their graduate degree program (see Appendix C). These pilot studies provided preliminary, but reasonably clear, evidence about many of the Florida Tech GTAs: they perceived that they were given very little feedback on their classroom experience either from supervising faculty or students; they preferred to learn from experience; and they were concerned about their students, time management, and grading during the course of their experience. Because these concerns are based on these experiences
of TA practice, they have not been, and most likely cannot be, addressed fully by
the current vehicle for professional development, the GTA Seminar.

Research Problem

Florida Tech’s GTA Seminar is a 3-day mandatory, centralized, university-
wide program that works with all academic departments and provides professional
development training for GTAs with diverse roles and responsibilities before the
start of the Fall and Spring semesters. The elements that provide the framework for
the curriculum of the GTA Seminar are tied to practical needs and include:
behavioral objectives, Bloom’s (1956) taxonomy, reflective practice, and Kolb’s
(1984) learning styles. Although these elements stem from teacher education, there
is no clear or apparent reliance on any particular theory to support or guide the
design of the GTA Seminar. The seminar is structured to deliver preparatory
information in the morning sessions and microteaching practice in the afternoons.
Attendees are presented with numerous tasks:

- writing measurable objectives at different levels of Bloom’s (1956)
taxonomy,
- developing assessments that align with stated objectives,
- discussing the impact of learning styles in the classroom,
- explaining the importance of having an organized class,
- describing the characteristics of persuasion and relating them to teaching,
creating a learning-friendly classroom environment,

designing a plan or strategy to deal with conflicts that may occur in the classroom,

explaining the role of non-verbal and cultural communication in the classroom,

making use of various teaching strategies to improve instructional communication, and

evaluating peers teaching using a rubric of effective teaching strategies.

Florida Tech’s GTA Seminar has been required for all university GTAs for more than a decade. However, as noted above, the only form of evaluation prior to my study has been feedback from the GTAs expressing their level of satisfaction with each session after having completed the seminar.

Since the inception of Florida Tech’s GTA Seminar, professional development following it has been limited to what the academic units do on a case-by-case basis. By way of analogy, the seminar is a vaccination of sorts used to fend off bad teaching without any follow-through or check-ups. What appears to be needed at Florida Tech are additional opportunities for professional development, and studies that would investigate GTAs’ development in terms of their teaching concerns, reflections, and practices. As Nyquist and Sprague (1998) have maintained, TA development is very important to consider when working with TAs. Moreover, those who are in charge of the professional development of TAs
would benefit from learning what TAs need during their teaching experience so that those needs can be addressed.

One possible reason for this limited follow-up is that faculty who supervise the GTAs are not connected to any part of the seminar, so there is limited opportunity for supervisors to reinforce or extend what is taught in the seminar. Essentially this means that there are no follow-ups to check that the GTAs are actually applying any of the skills they have learned and, as a result, what is taught in the seminar can be easily lost once the seminar is over. During the Spring 2012 pilot studies, some GTAs expressed concern over apparent inconsistencies between their academic unit and from the university-wide program regarding their role as GTAs. An unfortunate result of these inconsistencies was the GTAs’ interpretation of a lack of faculty support for the professional development training provided by the GTA Seminar.

Despite the number of TA training programs that have been studied, there is little research addressing the professional development of TAs during their actual teaching experience using video self-confrontation and coaching. Although many programs such as Florida Tech’s GTA Seminar include some types of evaluation, most of these evaluations gather feedback from the participants—which may only determine GTAs’ level of satisfaction with the program, not immediate or longer-term outcomes (Belnap, 2005).
Purpose

The purpose of my study was to investigate GTAs’ concerns, self-reflections, and practice while they experienced the following professional development sequences during the course of their work over a semester: coaching, video playback, and coaching paired with video playback. I looked at the information that participants provided as well as gathered data such as course evaluations and observations of classes. These various sources of information helped temper the overall evaluation of the GTA Seminar and professional development offerings that follow it.

Newly appointed GTAs served as a unique group for this kind of study because they allowed me to explore and uncover their stages of concern, variation of practices, and quality of reflection over the course of a semester. Unlike former studies, my primary study allowed me to investigate the influence of video playback with and without coaching, make observations of the TAs’ teaching practice, take record of their background and teaching qualifications, and relate this information back to Fuller’s (1969) stages of professional development. The theoretical framework that guided the scope of my research was Fuller’s stages of professional development, reflective practice, sociocultural, and social cognitive theory.
Research Questions

The following set of research questions guided the investigation:

1. In what way(s) did a professional development sequence for the four GTAs who underwent coaching influence their teaching concerns, self-reflections, and practice?

2. In what way(s) did a professional development sequence for the four GTAs who underwent video playback influence their teaching concerns, self-reflections, and practice?

3. In what way(s) did a professional development sequence for the five GTAs who underwent coaching paired with video playback influence their teaching concerns, self-reflections, and practice?

4. What similarities and differences, if any, are apparent in analyses of the perceived influence of coaching, video playback, and coaching paired with video playback on GTAs’ teaching concerns, self-reflections, and practice?

Significance of Study

From my review of the literature, it appears my study will be the first to investigate GTAs’ teaching concerns, self-reflections, and practice in combination with coaching, video playback, and video playback paired with coaching.

Furthermore, it continues to expand the application of theory to the professional development of GTAs. Graduate Teaching Assistants are a unique group of people who may benefit from the use of self-reflections, coaching, and video playback.
Given this, my investigation builds on recent research by observing GTAs’
response to coaching, video playback, and coaching paired with video playback.

On a more localized basis, my study provides Florida Tech and those
responsible for GTAs and the GTA Seminar with information about the
professional development of GTAs so that those responsible for their professional
development may gain further insight in this regard. Lastly, it offers participating
GTAs feedback on their teaching experiences and possibly helps them to develop
self-awareness when they teach their students. Finally, my study provides a means
of follow-up to the GTA Seminar in that it explores what GTAs experience
following this seminar and during their work.

**Study Delimitations**

Several self-imposed restrictions, which will limit the generalizability of my
study findings, were present in my study.

They are as follows:

1. *Study location*. My study took place on the Florida Tech campus, which
may limit transferability. Florida Tech is the only Ph.D.-granting
independent technological university in the southeast. During the 2012-
2013 academic year, its enrollment was 16,000 students. Fifty-one percent
of the enrollment attended school on campus, 38% attended online; and
11% attended the extended campus. The university is divided into five
colleges with enrollment percentages in parenthesis: College of
Engineering, (55%); College of Science, (15%); College of Aeronautics, (8%); College of Business, (10%); and College of Psychology and Liberal Arts, (10%). The remaining 2% of enrolled students unaccounted for are undecided majors.

2. **Duration of study.** I observed participants three times over the course of the Fall 2012 semester after the participants completed the GTA Seminar and had commenced practicing their Teaching Assistant roles. Any claims about the outcomes in my study will be limited to this number of observations.

3. **Selection of teaching assistants.** The eligibility criteria to participate in my study ruled out some of the GTA Seminar participants, including those who did not obtain TA contracts for Fall 2012 and those whose GTA responsibilities did not include teaching in classroom or lab settings.

4. **Teacher concerns questionnaire.** The Teacher Concerns Questionnaire (TCQ; Fuller & George, 1978) was utilized to assess the GTAs’ concerns about teaching before and after I employed the professional development sequences.

5. **ANGEL data collection.** ANGEL was the electronic platform used to support the collection of data from TAs, including the following: TCQ responses, reflective journal entries, and BIS responses.
Study Limitations

Limitations, which mark the boundaries of this qualitative study, are a part of all educational studies and limit the generalizability of a study’s results. There were 10 limitations for my study. These are listed here numerically for the next few pages.

1. *GTA recruitment*. In this study, I relied on a voluntary group of GTAs for my sample. I had great difficulty in recruiting participants because many of the GTAs who had attended the GTA Seminar saw themselves as too busy to deal with participation in the study and were potentially disinclined to be observed in their work. I believe the description of study proceedings may have given an impression of more work than what was actually required. As a result, subsequent replication studies might not get similar results if the recruitment procedures and sample are not similar to those in this study.

2. *Data collection concerns*. I had trouble collecting observations of GTAs under pre-specified time intervals, obtaining prompt responses to reflection journals from the GTAs, collecting observations of the same class section for each of the three observation times, and holding pre-observation interviews. As a result, subsequent replication studies might not get similar results unless similar data collection circumstances occur with GTAs.

3. *Instrument and data analysis issues*. These issues involved missing or unclear responses to important background information questions, unclear
differentiation between task concerns and impact concerns, and lack of agreement between the TCQ and reflection journals. As a result, subsequent replication studies might not get similar results unless similar background information is collected about GTAs and similar distinctions are made between task concerns and impact concerns.

4. **Technical issues.** The technical issues that occurred were poor camcorder sound and ANGEL data collection failures. As a result, subsequent replication studies might not get similar results unless they have similar technical issues to those in this study.

5. **Hawthorne effect.** The Hawthorne effect was another concern regarding behavioral problems during the study. The Hawthorne effect occurs when subjects “change their behavior just because of the attention gained from participating in an experiment” (p. 301, Ary et al., 2006). Evidence of the Hawthorne effect in my subjects presented itself in one of two ways: eagerness to perform research duties and willingness to help out a fellow graduate student (me). As a result, subsequent replication studies might not get similar results unless they have similar issues with the Hawthorne effect to those in this study.

6. **Student evaluations.** The availability of student evaluations to Teaching Assistants varied depending on the academic department norms of dealing with that information. For example, some departments did not have students
evaluate their GTAs separately from the professors who led the class. As a result, subsequent replication studies might not get similar results unless GTAs have similar access issues to student evaluations to those GTAs in this study.

7. *Subject.* The subject the GTAs taught varied from GTA to GTA. It depended on who volunteered for my study as to whether or not I could achieve an even spread of disciplines across my three treatment groups and comparison group. As a result, subsequent replication studies might not get similar results if the GTAs teach subjects different from what was taught in this study.

8. *Instructional schedule.* The instructional schedules varied from GTA to GTA. Some of them taught twice a week—others taught once a week. As a result, subsequent replication studies might not get similar results if the GTAs do not follow instructional schedules similar to what was followed in this study.

9. *Class time duration.* The class time duration for the GTAs varied depending on their assignment, their pace, and their students. For example, some GTAs taught labs that lasted 3 hours, while others taught classes that were 1.5 hours. As a result, subsequent replication studies might not get similar results if the GTAs do not have class time durations similar to those in this study.
10. **Classroom setting.** The classroom settings were varied and diverse. For example, GTAs taught in laboratories, the field, computer labs, and lecture settings. In one particular case, Karen’s, I observed that she had students from other TAs’ classes join her class so that they could make up the lab they skipped earlier in the week. Further, Renee taught in the laboratory as well as field and lecture settings. As a result, subsequent replication studies might not get similar results if the GTAs do not have classroom settings similar to those in this study.

**Definition of Terms**

Key terms used in the context of the study are operationally defined as follows:

1. **Concerns about teaching** was defined as the things GTAs “think about frequently and would like to do something about personally” in regards to teaching (Fuller & George, 1978, p. 37).
2. **Coaching** was defined as responsive coaching. This type of coaching has a “broad goal and structure, however, responsive coaching has no predetermined agenda. Throughout the coaching cycle, the coach attempts to respond to the teacher’s interests, goals, and concerns” (Gordon, 2004, p. 54). The cycle consists of five stages: Pre-conference, Observation, Analysis, Postconference, and Critique. The only element of Gordon’s (2004) responsive cycle that was not be employed was the fifth
stage, Critique, which involves the coach seeking feedback from each TA on the value of the first four stages.

3. *Teaching assistants* were defined as higher education students who perform a wide range of teaching duties for a course in return for financial aid (Bomotti, 1994). *Graduate Teaching Assistants* were a subset of Teaching Assistants who have earned either a bachelor’s or master’s degree and were working on their master’s or doctoral degree while they performed their teaching duties.

4. *Practices in teaching* was defined as the TAs’ actual teaching behaviors and performance (Marcos & Tillema, 2006).

5. *Self-reflection* was defined as “deliberate thinking about action with a view to its improvement” (Hatton & Smith, 1995, p. 40).

6. *Metacognition* was defined as “people’s knowledge of their own learning and cognitive processes, as well as their regulation of those processes to enhance learning and memory” (Ormrod, 2008, p. 351).

7. *Self-regulation* was defined as the self-directed and goal-oriented portion of metacognition that involves both learning and behavior (Ormrod, 2008).

8. *Zone of proximal development* (ZPD) was defined as the range of ability that spans between what a TA is able to do independent of others and what a TA can do with guided assistance (Vygotsky, 1962).
9. Video playback or Video self-confrontation was defined as a representation of reality to the TAs by having them watch video of themselves teaching class and self-critiquing their performance (Fuller & Manning, 1973).
Chapter 2
Review of Related Literature

Introduction

This chapter contains two sections and ends with a summary. The first section is an overview of the theoretical frameworks that guide my study. The second section provides an overview of past research on Teaching Assistants. The summary provides commentary on prior research and theory as well as the implications that were gleaned from my literature review.

Overview of Underlying Theory

“Theories of learning provide explanations about the underlying mechanisms involved in learning” (Ormrod, 2008, p. 5). Theory plays a crucial role in TA research because it informs the research design and methods, and therefore has the potential to guide interpretation and explanation of study findings. Theory helps researchers construct a conceptual framework for understanding their research. The conceptual framework then provides guidance for forming research questions and choosing proper methods of collecting data (Griffee, 2012). Four theoretical frameworks were selected to guide the implementation and scope of my study: Fuller’s (1969) stages of concerns, reflective practice, sociocultural, and social cognitive theory.

Selection of a teacher developmental theory. Because my study takes place over the course of a semester instead of 3 days as in the GTA Seminar, I
decided that teacher developmental theory may be a useful way to frame it. Fifteen different developmental theories were found in the teacher education literature regarding either pre-service and/or in-service teachers (Burden, 1990; Kagan, 1992). These were then narrowed down to five by eliminating those theories that covered too extensive of a time period to consider for use as a framework in my study. The five that remained were the theories of Berliner (1989), Caruso (1977), Ryan (1986), Kagan (1992), and Fuller (1969).

Berliner’s (1989) developmental theory is a 5-stage theory of teachers’ cognitive processes as they progress to become expert teachers. His theory was created on the basis of research comparing differences between novice and expert teachers (Richardson & Placier, 2001). The first stage, novice, consists of behavior that is “very rational, relatively inflexible, and tends to conform to whatever rules and procedures the person was told to follow” (Berliner, 1989, p. 40). The second stage, advanced beginner, is described as “when similarities across contexts are recognized and episodic knowledge is built up” (Berliner, 1989, p. 41). The third stage, competent, is when teachers are able to “make conscious choices about what they are going to do and they are personally in control of the events around them” (Berliner, 1989, p. 42). The fourth stage, proficient, is when the teacher’s “intuition and know-how become prominent” (Berliner, 1989, p. 42). The fifth stage, expert, is the more arational stage where the teacher “talks and walks in effortless manner” (Berliner, 1989, p. 43). Although it is somewhat feasible for Berliner’s (1989)
theory to be applied to GTAs, it doesn’t seem plausible for the time limits of either their TA appointments or my study.

Caruso’s (1977) developmental theory is a 6-stage theory that describes phases of feelings student teachers experience about themselves and their experiences during their assignments. This theory is based on Caruso’s work with student teachers, including his review of their journals (Burden, 1990). The first stage, anxiety/euphoria, occurs when students begin to separate themselves from the campus environment and adapt to the classroom. The second stage, confusion/clarity, addresses the complexity of the classroom situation and how student teachers are confronted with the perplexity of determining rules and routine. The third stage, competence/inadequacy, involves instances of success that begin to induce feelings of being effective as a student teacher. The fourth stage, criticism/new awareness, is when the student teacher commits more time and thought to students and professional issues. The fifth stage, more confidence/greater inadequacy, occurs when survival is no longer an issue and the student teachers know they are going to thrive. This sixth stage, loss/relief, is applicable only to student teachers because it describes the separation of student teachers from individuals they have been closely associated with due to the ending of their student-teaching assignment. Although some stages of Caruso’s (1977) theory can be applied to GTAs (e.g., stages two through five), others are too specific to student teachers to be appropriate (e.g., stages one and six).
Ryan’s (1986) developmental theory builds on Fuller’s (1969) theory of teachers’ concerns (i.e., self, task, and impact stages) by adding a fourth stage that includes their preparation and student teaching. The stages that emerged in Ryan’s investigation of pre-service preparation are the fantasy stage and the survival stage. The first stage, the fantasy stage, deals with what pre-service teachers fantasize about in regards to what life as a teacher will involve. Whether or not the fantasies are pleasant, pre-service teachers often do not think about their future career in a careful, logical manner. They often find education courses irrelevant because these courses have little to do with their fantasy lives. The next three stages (i.e., survival, task, and impact), agree with the Fuller (1969) model, which will be described later in this chapter. Ryan’s (1986) theory was determined to be not as widely applied as other developmental theories, such as Fuller’s; therefore, it was not seen to be as useful for my study.

Kagan’s (1992) developmental theory was derived from her review of 40 learning-to-teach studies. Her theory accounts for the shift in concerns from self to pupils in relation to the change of a novice’s image of self as teacher. It further validates the Fuller (1969) and Berliner (1989) theories, but differs from Fuller’s implication that the novice’s initial focus on self is a situation to be remedied (Fuller & Bown, 1975). According to Kagan, the novice’s initial inward focus is necessary because the novice must first establish his or her self-image to progress through the remaining stages. Kagan also inserted schema theory into Fuller’s
(1969) theory, which claims that the novice’s schemata for pupils and for self as teacher change over time simultaneously. A finding of Berliner’s (1989) theory, the adherence of expert instructors to procedural routines, is further validated and elaborated in this model. This theme asserts that routines help instructors effectively combine classroom management and instruction to improve classroom flow. These routines, along with the resolution of the novice’s image of self as teacher, help to refocus the beginning teacher toward pupils and their learning. Finally, this model is consistent with Fuller’s and Berliner’s observations about the inadequacy of pre-service teacher education programs in preparing novices for their work as teachers. Because Kagan’s (1992) theory lacked an instrument to measure the progress of a novice, and because no stages were clearly delineated in her theory description, it was decided that this theory would not serve the purposes of my study.

**Fuller’s stages of concern.** Fuller’s (1969) developmental theory consists of three distinct stages preceded by a pre-teaching phase: 1. Self; 2. Task; and 3. Impact. The pre-teaching phase is characterized by a lack of concern for the elements of teaching or at the least a very naïve view of teaching. The self stage (also known as survival stage) deals with teachers’ concerns regarding their acceptance and credibility as professionals in different settings (Fuller & Bown, 1975). The task stage is characterized by concerns of classroom management and classroom procedures. The impact stage, the most mature or superior of the three,
occurs when concerns are focused on what the students gain and self-evaluations based on those gains. Fuller’s theory has been used widely in education research (Adams, Hutchinson, & Martray, 1980; Capel, 1997; Kazelskis & Reeves, 1987; Pigge & Marso, 1997; Reeves & Kazelskis, 1985; Schipull, Reeves, & Kazelskis, 1995; Watzke, 2003) and has served as a base from which other models have been formed (Cho, Kim, Svinicki, & Decker, 2011; Ferzli et al., 2012; Hall & Loucks, 1978; Hall et al., 1973; Rogan Borich, & Taylor, 1992; Staton-Spicer & Bassett, 1979). For this reason, it was chosen as the primary theoretical framework on which my research is based.

Fuller (1969) unveiled her vision of teacher development after a three-part study consisting of a counseling seminars study, a written concerns statements study, and a study of regrouped data. Her overall purpose was to determine what educational interests student teachers have and attempt to organize those interests into a useful structure. To achieve this purpose, she designed and conducted two studies. The first was a comparative study on what pre-service teachers believed they needed and what they actually received in teacher education coursework. She held 2-hour weekly, taped seminars for six student teachers so they could discuss anything that came to their minds about teaching. Two judges clustered each of the statements made by student teachers into categories that were derived inductively. Differences in the cluster analysis were resolved by conferencing until agreement was reached on the categorization of each statement. In the written concern
statements study, 29 student teachers wrote about what most concerned them every 2 weeks during a semester. Their statements were classified under three topics: concerns with self, concerns with classroom management, and concerns with student learning. Of those 29 student teachers, 22 conveyed concerns about self, while none addressed concerns primarily about student learning.

Fuller searched for studies that also had defined early concerns as “the perceived problems of student teachers or beginning in-service teachers” (Fuller, 1969, p. 214). Ten studies were found that applied this definition in research. The findings from these studies continued to confirm student teachers’ and beginning teachers’ preoccupation with self-related concerns. This led to the investigation into whether self concerns continued to persist throughout the teachers’ careers. Therefore, experienced teachers’ concerns were then investigated by regrouping data Gabriel (1957) had collected from a survey study. Fuller (1969) found that experienced teachers were not very concerned with discipline or observations by other people. The experienced teachers were more concerned with the academic progress of their students. Exceptional, experienced teachers interviewed by Jackson (1968) also had concerns about students’ progress. Some of them voluntarily noted their decrease in concern with discipline and self-adequacy. Fuller tentatively characterized the third stage of teacher concerns as a time when teachers focus on student gain and self evaluation instead of personal gain and
evaluation by others. The three stages of concerns were further confirmed in subsequent research.

The teacher concerns research that followed resulted in an easily-scored, pencil-and-paper questionnaire called the Teacher Concerns Checklist (Fuller, Parsons, & Watkins, 1973; George, Borich, & Fuller, 1974; Parsons & Fuller, 1972). This instrument consists of 56 Likert-scale questions, each of them related to the scoring categories of role, adequacy, being liked, teaching, and pupil needs. Each respondent marks his or her degree of concern about each item on a scale of 1 to 5 (not concerned to extremely concerned). Scoring the instrument consists of summing the responses to items in each category to obtain the five scale scores. Although the Teacher Concerns Checklist provides a fast and reliable method for measuring concerns, it does not allow for freely submitting concerns other than those on the list. Additionally, the five scales have been confusing to practitioners. To address these issues with this instrument, the Teacher Concerns Questionnaire (TCQ) was developed. It is composed of 15 items that originated on the Teacher Concerns Checklist and ends with an open-ended question about concerns (George, 1978).

Although Fuller’s (1969) theory has received much support and widespread use, it does have its critics. Floden and Feiman (1980) performed a critical review of effectiveness criteria based on three different approaches to teacher development. In their paper they named impact concerns as the most desirable
stage of Fuller’s theory, which is defended by the idea that it is good for teachers to be concerned about their impact on student learning. The difficulty with this is that it does not provide specificity as to what sort of impact the teacher hopes to have on students. For instance, teachers who have such concerns may range from those hoping students can recall facts to those hoping to produce self-motivated learners. Additionally, the reasons for hoping that teachers will grow to have impact concerns are not based on experimental evidence of a clear, progressive sequence of stages. “The criteria seem at once too general and too much dependent on the idea of teachers as technicians” (Floden & Feiman, 1980, p. 10). Floden and Feiman (1981) also emphasized that a description of the changes that result in the end state and a description of how the changes are fostered are both necessary to explain developmental theory for teacher change. They concluded that most developmental theories, including Fuller’s (1969) theory, are weakest in their description of the process of change.

Fuller’s (1969) theory has informed research in other TA studies (Cho et al., 2011; Feezel & Myers, 1997; Ferzli et al., 2012; Nyquist & Sprague, 1998; Ronkowski, 1989), all of which have found the application of the theory provided useful insights into the professional development of TAs. The methods, findings, and implications of each of these studies are summarized in the following sections. My primary study continues these efforts to better understand Fuller’s theory in relation to GTAs by centering the implementation of research on Fuller’s (1969)
stages of concern. I asked study participants to reveal their concerns about teaching explicitly at the beginning and end of the study with the Teacher Concerns Questionnaire (TCQ) and throughout via other forms of data collection such as reflection journals, coaching, and observation. Reflection journals included self, task, and impact questions. The coaching was led by GTAs’ teaching concerns, so it was responsive in nature. Observations GTAs made of themselves were discussed in reflection journals or coaching interviews. Thus, Fuller’s (1969) theory not only guides my study; it informed my understanding of the dominant stages of concern for Florida Tech GTAs.

**Reflective practice.** Reflective practice started several decades ago when John Dewey defined reflective thinking as “(1) a state of doubt, hesitation, perplexity, mental difficulty, in which thinking originates, and (2) an act of searching, hunting, inquiring to find material that will resolve the doubt, settle and dispose of the perplexity” (Dewey, 1933, p. 12). Dewey (1933) redefined the common understanding of reflection, which was to simply think about a situation or contemplate one’s behaviors or actions. This new approach to reflection is opposed to those that view problems in a negative light, such as errors or mistakes, but rather insists that problems are curiosities that are to be explored or pondered until the perplexity is resolved. Although Dewey is credited with the origins of reflective thinking theory, Donald Schön (1983) clarified and gave it new life with widespread popularity (Lyons, 2010).
Schön (1983) rendered his own interpretation of reflection for professional knowing and learning after studying Dewey’s (1933) work. He rejected the positivist belief that practice was simply applying knowledge gained through rules, educational theory, or research to solve problems. Alternatively, Schön thought that professionals have knowledge that is intermingled with practice and cannot be put into words—a sort of tacit knowledge. This tacit knowledge occurs within times of doubt, perplexity, or uncertainty. When the point of perplexity is reached, the professional then develops frames from which the problem will be solved. Framing and reframing refer to the alternative perspectives that are achieved in the practice of reflection; therefore, one may understand the situation from his or her own perspective or reframe to look at it through another person’s eyes. Schön’s work, detailed in *The Reflective Practitioner* (1983), led to wide acceptance of reflective practice in the teaching profession (Darling-Hammond & Snyder, 2000; Lyons, 2010; Valli, 1992; Zeichner, 1996).

The work of both Dewey (1933) and Schön (1983) led to the development of several different frameworks. Ward and McCotter (2004) performed a literature review on these frameworks of teacher reflection, and found the following:

There are missing elements from the existing frameworks, however, which make them difficult to use for evaluating the quality of pre-service teacher reflection. A common shortcoming of these frameworks as tools for evaluation is a lack of attention to how teachers situate their thinking within
the context of their practice (Kitchener & King, 1981; Ross, 1989). Other frameworks are incident-based, which has the advantage of being situated in practice, but misses the ongoing, cyclical aspect of framing and reframing problems (Galvez-Martin et al., 1998). Still other frameworks include many of the general principles about the process of reflection, but lack a method to either practically use them in evaluating the reflection of teachers (Stanley, 1998; Clarke, 1995) or to evaluate both the qualities and dimensions of reflection (Hatton & Smith, 1995; Korthagen, 1999; Korthagen & Kessels, 1999). (p. 246)

This review set the stage for Ward and McCotter (2004) to create their reflection rubric, which was based on the definition: “deliberate thinking about action with a view to its improvement” (Hatton & Smith, 1995, p. 40). Further, the rubric was designed to clarify the qualities of reflection that are linked to student teacher learning and improvement in practice, and which will be described in detail in Chapter 3.

**Relationship between reflective practice and concerns theory.** Hatton and Smith (1995) related reflective practice to Fuller’s (1969) concerns theory in their framework for types of reflection in teacher education. It is important to note that the order of levels they presented in the framework had the purpose of indicating a developmental sequence, not a hierarchy. The beginning level of the framework, Technical rationality, was connected to self and task concerns because
it involved decision-making drawn from research or theory in light of personal worries or previous experience. The next level of the framework, Reflection-on-action, dealt with task and impact concerns and can be further divided into descriptive, dialogic, and critical reflection. Descriptive reflection occurred when the teacher analyzes his or her performance teaching. Dialogic reflection involved the consideration of differing viewpoints and exploring a variety of solutions. Critical reflection occurred when the social, political, and/or cultural aspects of one’s actions were deliberated. Finally, the third level of reflection, reflection-in-action, was tied to impact concerns. Reflection-in-action was implemented when the teacher draws on any of the prior levels as a situation is actually taking place.

**Sociocultural theory.** Vygotsky’s (1962) Sociocultural theory was developed as a result of his numerous studies throughout the 1920s and early 1930s. He was largely unknown by Western psychologists until several decades after his death, when his work was translated from Russian to English. His research focused on the contribution of children’s social and cultural environment to their cognitive growth (Vygotsky, 1962). Central to his theory, the term zone of proximal development (ZPD) was coined by Vygotsky to describe the range of ability that spans between what a child can do on his/her own and what a child can do only with guided assistance. It was his belief that children advance very little cognitively when performing tasks they are already able to do on their own. Alternatively, he suggested that children develop predominantly by striving to do
tasks within their ZPD when simultaneously accompanied by the assistance of an expert. There are different ways experts can provide their assistance to novices, including modeling the desired behavior, providing supportive guidelines or scaffolding, having the student reveal his/her inner thought process, or coaching (Ormrod, 2008). Coaching was deemed the most appropriate method chosen for providing assistance because it involves observing the novice perform a task and then giving feedback on what was observed.

Although coaching is often confused with mentoring, the two differ in scope of purpose. Whereas mentoring deals with long-term development in that it focuses on all facets of a teacher’s role—from teaching to administrative duties, coaching deals with short-term development and focuses on the teacher’s instructional performance (D’Abate, Eddy, & Tannenbaum, 2003). According to Gordon (2004), there are two different methods of implementing coaching: expert coaching and reciprocal coaching. Expert coaching is done by those who have had previous experience in coaching. The teachers they coach are not trained in coaching and do not coach others. Reciprocal coaching is when all teachers involved receive training in coaching so that they may then coach each other.

There are five different coaching models, which may use only expert coaching, reciprocal coaching, or both. Team coaching uses only expert coaching; the coach who has expertise in the target teaching strategy and the teacher collaboratively plan, teach, and evaluate the lesson. Peer coaching study teams use
only reciprocal coaching; teachers agree to be on a team, determine as a group what needs to be changed, support each other in the process of change, and collect data on the change implementation and student outcomes. Technical coaching, cognitive coaching, and responsive coaching all may use either expert or reciprocal coaching. Technical coaching is focused on transferring the objectives of training into classroom practice. Cognitive coaching is designed to facilitate the teacher’s ability to use self-regulated learning. Responsive coaching has no pre-determined agenda other than to respond to the teacher’s interests, goals, and concerns as they surface (Gordon, 2004). Because my study is centered on GTAs’ concerns and GTAs haven’t any formal training in coaching, I have decided to use the responsive coaching model with the expert coaching implementation.

**Theoretical relationship between reflective practice and sociocultural theory.** Although there has been modest attention to sociocultural theory (e.g., Carlson, 1994; Nelson, 2000; Trouba, 2009) and modest attention to reflective practice in research on GTAs (e.g., Doe, 2001; Ingram, 2001; Supko, 1997), no explicit references to the relationship of sociocultural theory to reflective practice were found in the literature. Due to apparent points of mutual interest, some of which are relevant to my study, attention has been given to selected theoretical aspects of this relationship here. During the implementation of responsive coaching, the coach offers an alternative view or perspective to the novice, drawn from the in-classroom observation. The coach’s alternative perspective may help
the novice to reframe his or her perspective, which is one of the defining characteristics of reflection as depicted by Schön (1983). Whether or not the alternative perspective offered by the coach would be taken seriously enough to be carried into the novice’s reflection and practice is yet to be seen, so that was one of the aspects I have considered during the course of my study.

**Social cognitive theory.** Social cognitive theory began in the 1960s with the writings of Albert Bandura (e.g., 1965, 1969, 1973, 1977) who influenced theorists’ view of learning by imitation. The first study of imitation was performed by behaviorists, Neal Miller and John Dollard (1941). They believed that people imitate one another because they were reinforced to do so. However, Bandura (Bandura & Walters, 1963) found three problems with the behaviorist way of thinking about imitation: completely new behaviors can be formed from watching other people as opposed to being limited to shaping existing behaviors by observation, the existence of delayed imitation means that learning may occur without the reinforcement occurring at the same time as the stimulus, and the existence of vicarious reinforcement means that people sometimes display behaviors for which they will never be reinforced. From these observations, Bandura (1977) developed a new theory named social cognitive theory.

Although social cognitive theory incorporates elements of behaviorism, it rests on the basis that learning is more about making mental gains than behavioral gains. Because of this shift in focus from behavioral gains to mental or cognitive
gains, greater attention was given to cognitive processes. For example, Bandura (1977) found that attention, mental rehearsal, retention, and motivation were all cognitive processes that were essential for learning. He also found that response-consequence contingencies impacted learners in three different ways: learners must be aware of them, learners form expectations from them, and learners are influenced by the nonoccurrence of them. In finding that learners form beliefs about their ability to perform a behavior, Bandura (1982) coined the term self-efficacy and found that these beliefs also influence the cognitive processes involved in learning. Lastly, Bandura (1977) found that learners gauge their use of cognitive processes based on the likelihood that their efforts made in learning will lead to reinforcement.

As social cognitive theory developed throughout the years, theorists became more interested in self-regulation. Although other types of theorists have discussed self-regulation, social cognitive theorists are credited with establishing the foundation from which others have worked. Social cognitive theorists define self-regulation as having at least four processes: setting standards and goals, self-observation, self-evaluation, and self-reaction. Self-regulation applies for both learning and behavior. However, it falls under the broader heading of metacognition when it applies to learning. Metacognition is defined as “people’s knowledge of their own learning and cognitive processes, as well as their regulation of those processes to enhance learning and memory” (Ormrod, 2008, p. 351). In my
study, self-regulation would apply to the video-only group because they were tasked with setting goals or standards (by focusing on their teaching concerns), self-observing, self-evaluating, and self-reacting to their teaching lessons on video. These tasks could lead the participants to using self-regulated learning when they make adjustments or corrections in how he or she explains a concept (e.g., using a visual aid instead of a verbal explanation) and self-regulated behavior when the participant practices a different behavior (e.g., making an effort to ask more questions of quiet students).

**Theoretical relationship between reflective practice and social cognitive theory.** Although there has been modest attention to reflective practice (e.g., Doe, 2001; Ingram, 2001; Supko, 1997) and modest attention to social cognitive theory in research on GTAs (e.g., Avci, 2012; Boman, 2008; DeChenne, 2010; Liaw, 2004; Peterson, 2004), I found no mention of the relationship between reflective practice and social cognitive theory in the literature. In social cognitive theory, self-regulation is considered to be the self-directed and goal-oriented portion of metacognition (Ormrod, 2008). When I asked participants to implement reflection journals, I was asking the participants to implement some of the elements of self-regulation. They may have implicitly set goals and standards for their teaching—which they can self-monitor, self-evaluate, and self-react. Self-efficacy is commonly defined or described as the perception one has as to his or her ability to do something successfully (Ormrod, 2008). While the participants evaluated their
teaching performance in their reflection journals, at the same time they discussed their perceptions of their ability to teach.

**Overview of Past Research**

This section presents a review of research pertinent to my study. First, there is a discussion of two reviews of research that were reported in the early 1980s. This is followed by my review of dissertation and thesis studies. Finally, I discuss recent studies investigating TAs and Fuller’s (1969) theory, reflective practice, coaching, and video playback. As a whole, this section is intended to provide information that informed the conduct of my research.

**Reviews of research.** Two reviews of research were found in the literature. One was a critical review of research on improving college teaching (Levinson-Rose & Menges, 1981), and the other was a review of empirical research on the effects of training programs for university TAs (Carroll, 1980). Each summarizes and synthesizes information from research studies spanning from the mid 1960s to the early 1980s. Although much has changed in the educational system since each review, some data/evidence gathered then may still be relevant today. These also may provide perspective as to how college teaching and professional development research has changed over time.

**Carroll review.** Carroll (1980) performed a critical review of empirical research on the outcomes of TA training that served three purposes: “(a) to present a critical analysis of the empirical research on TA outcomes and student outcomes,
(b) to recommend directions for future research, and (c) to discuss implications for educational policy” (Carroll, 1980, p. 168). The focus of his review was delimited to those graduate and undergraduate TAs who were serving in the role of instructors. Forty-eight studies were found to provide adequate description of the TA training programs under investigation. Thirty-three of the 48 studies provided empirical data on the effects of training and were used in his two-part analysis. In the first part, TA variables, Carroll reviewed measures of TAs’ knowledge, attitudes, and observed teaching behavior. The second part, student variables, he reviewed student achievement, attitudes, and ratings of instruction.

Carroll (1980) found only one study that measured TA cognitive outcomes after training. This study did so by means of a self-reported questionnaire that was administered at the end of a 15-week training program. The scores of the 14 participants were compared to those of a nonequivalent control group, and found to be significantly different in that they were more knowledgeable about using behavioral objectives and statistical procedures for testing than the control group. Carroll (1980) warned that the validity of this finding is questionable because of the bias of participants and possible interactions between selection and other factors, notably history.

Five studies investigated the effects of training on TA attitudes. Carroll found the results of these studies to be “far from conclusive” (Carroll, 1980, p. 171). One noticeable pattern was that the attitudes tended to change in relation to
highly specific topics such as criterion-referenced testing, behavioral objectives, and microteaching. Attitudes toward more general things such as teaching as a career and teaching concerns did not show significant differences. The results suggested that short-term changes in participants’ attitudes were possible with TA training programs; however, there was no evidence of that these attitudinal changes persisted over time.

Thirteen studies investigated the TAs’ observed teaching behavior. These studies revealed that training programs designed to change participants’ teaching behavior in clearly specified ways were mostly successful in producing an observable change within one or two semesters.

In the second part, Carroll (1980) reviewed research on student variables. The measure of attitudes represents the affective impacts resulting from instruction; the measure of ratings of instruction represents affective views on the quality of instruction; and the measure of achievement represents the students’ cognitive growth as measured by test or some other measure of achievement. Of the 17 studies on student variables, 10 investigated student ratings, 4 investigated student ratings and achievement, 1 investigated student attitudes and achievement, 1 investigated student achievement only, and 1 investigated student ratings, achievement, and attitudes. Carroll summarized all of the student outcome research by methodology. The quasi-experimental studies produced evidence that suggested that training programs covering a broad range of teaching topics enhanced student
attitudes, achievement, and ratings of instruction. However, there were doubts about the validity and generalizability of these findings due to methodological weaknesses. Most of the true experimental studies investigated training programs that were limited to a specific set of teaching skills, and few of these studies found significant differences on student variables. Carroll (1980) concluded that because the two types of methodology were investigating different types of training programs, it was not clear whether the results of the quasi-experimental research were real or artificial.

The implications for research drawn from Carroll’s (1980) review were centered around the need for more focus on assessing the effects of TA training programs rather than simply providing descriptions of novel ways to conduct them. He further stressed the need to improve the quality of research on TA training. For instance, researchers should obtain pre-training measures of dependent variables and employ analysis of variance to adjust for initial differences between groups. Researchers should strive to use random assignment, measure both student and TA variables, and obtain reliable observational data. Carroll recommended collecting data on cognitive and affective gains of TAs, change of TAs’ concepts of teaching, changes in TAs’ attitudes towards students, and the changes in TAs’ career aspirations in relation to TA training. He suggested there also needed to be further research to determine if the quasi-experimental results from this review were real. Researchers should replicate those studies and place more control on history.
maturation, and interaction effects. Further, Carroll stressed that the variables that influenced TAs’ implementation of training were currently unknown and needed to be investigated. Finally, Carroll suggested comparing different training programs with varying content, methods, and intensity to achieve more rich information.

**Levinson-Rose and Menges review.** A critical review of postsecondary education research was performed by Levinson-Rose and Menges (1981) to evaluate its impact. Seventy-one reports spanning from the mid-1960s to 1980 were selected for the review; 68 of which were coded in their appendix. Each study was critically analyzed for design, participants, unit of analysis, approximate duration, dependent variables, results, and confidence rating. Confidence rating was a rating of high, fair, or low given by Levinson-Rose and Menges to indicate how much confidence they placed in the results of each study. They admitted that these judgments were somewhat impressionistic, because no single set of criteria was applicable to all studies. However, sampling strategies and validity concerns were primary considerations in making these judgments.

Within the review, Levinson-Rose and Menges (1981) paused to address a common method of evaluating workshops: participant satisfaction ratings. They stressed that satisfaction ratings are known to be extremely misleading and cite McGuire, Hurley, Babbott, and Butterworth (1964) as evidence for this. They extrapolated guidelines for workshop evaluation based on the McGuire et al.
reference and their own review. Levinson-Rose and Menges (1981) further noted that very few of the studies in their review followed these guidelines:

(1) both immediate and delayed tests should be made, since without opportunity for continuing practice-with-feedback the postcourse level of skill mastery is likely to decline; (2) if participants’ self-assessments are to be accurate, they should refer to specific behaviors, those behaviors should have been assessed during instruction, and participants should have had opportunity to compare their performance with an external criterion; (3) finally, if sessions aim at attitude change and if they are evaluated through participants’ self-reports, the sessions should include exercises or discussions that ensure active encounter with a variety of views held by other members. (p. 410)

Twenty-seven of the 71 studies involved written student feedback to the instructor as the focus for changed teaching. These studies covered five areas of feedback: feedback alone, effects of feedback over time, feedback and personal consultation, discrepancies between student feedback and self-evaluations, and effects of ratings on student learning. Levinson-Rose and Menges (1981) noted that although the number of ratings studies is relatively large, the quality varies. The clearest finding amongst these studies was that discrepancies between instructor self-ratings and student ratings were predictors of who will benefit from ratings feedback. In most situations, the instructors who experienced the greatest impact
from ratings feedback were those who had higher self-ratings than student ratings. They recommended further research comparing feedback alone to feedback plus consultation. Of the four studies in this review that had made this comparison, only two supported consultation and none found feedback alone to be more effective.

Levinson-Rose and Menges (1981) concluded their review with four implications for researchers and four implications for practitioners. For researchers, they first recommended that more attention should be given to the individual differences instead of treating the participants as a homogenous group that is only recognizably different in the manner of treatment group to which they belong. Likewise, individual differences among students should also be noted to detect possible treatment interactions. Secondly, they asked that researchers provide sufficient operational definitions to their dependent variables so they may be compared to other studies with the goal of possible aggregation of findings across studies. Thirdly, they established a hole in the research: cross-campus collaboration studies (e.g., action research or professional learning communities). They further suggested that cross-campus collaboration studies would be useful for dealing with the problems common to the research they reviewed: lack of random assignment and small numbers. Finally, they recommended that researchers expand their data collection to reveal cognitive, emotional, and developmental experiences.

For practitioners, Levinson-Rose and Menges’ (1981) first recommendation was that grants for faculty-designed projects should require considerable staff time.
for optimal impact. Second, practitioners should construct workshops and seminars that provide participants with continued skill practice and critical feedback on their efforts to achieve persistent changes in teacher behavior or student outcomes. Third, practitioners should pair consultation with feedback from students, especially for faculty and TAs who have higher self-ratings than student ratings. Finally, concept-based practice was recommended for trial in postsecondary education. In a final note to readers, Levinson and Menges (1981) encouraged researchers to treat the participants as collaborators instead of objects of training programs.

**My review of dissertation and thesis studies.** The Proquest Dissertations and Theses database was searched for all research following the date of the reviews from 1982 to present using the keyword “teaching assistant.” One-hundred and twenty-four of the 175 returned results were determined to be of some relevance to my study. For example, teaching assistants from institutions other than colleges or universities were eliminated from the results to avoid confusion and to focus attention on the population that I intend to study. In the following paragraphs, I will group these studies according to paradigm, starting with quantitative studies. Then the populations, interventions, outcomes, and impacts of these studies are discussed in the overview of the framework.

There were 31 quantitative studies included among the 124 dissertations and theses. These 31 studies covered a variety of topics that included the following:
teaching effectiveness, transfer of training, academic performance of students, instructional design, pedagogical training, and program evaluation (e.g., Childs, 2006; DeChenne, 2010; Hardré, 2002; Notarianni-Girard, 1998; Peterson, 2004; Reilich, 1999). Thirteen of the 31 studies were surveys, and 10 of the 31 used quasi-experimental studies. There were only two true experimental studies, three correlational studies, and two causal-comparative studies. I was able to glean from these research reports those variables that are considered to be important in TA professional development.

Thirty of the 124 dissertations and theses were mixed-methods studies and started to appear in the literature around 1988. These studies were informative in one aspect because they demonstrated the different ways of combining qualitative and quantitative research to carry out a well-rounded investigation. This limited number of studies—a quarter of the total that was found—also demonstrates the relative infancy of the use of the mixed-methods paradigm for the investigation of TAs. Various topics were the focus of these mixed-methods studies, including the following: reflective thinking training, GTAs’ teaching attitudes and perceptions, ITA program evaluation, and peer observation program evaluation (e.g., Coimbra, 2002; Ingram, 2001; Latulippe, 2007; Nelson, 2000). These studies provided different perspectives of key variables.

Sixty-three qualitative studies were contained in the 124 dissertations and theses. The majority of the qualitative studies were case studies (i.e., 34 of the 63).
Nine of the 63 were survey studies, 6 were ethnographies, and 6 were grounded theory studies. Three of the qualitative studies used phenomenology, and the remaining studies used other methodologies, either alone or in combination with phenomenology. These studies covered a wide range of topics including the following: TA mentoring, pedagogical mentoring program evaluation, ITA training, and ITA preparation (e.g., Emmel, 2002; Ernst, 2008; Lane, 2002; Nehls, 1998; Shi, 2006; Shiga, 2008). The review of these studies gave me the opportunity to gain a deeper understanding of the variables at play in TA professional development.

Drawing from the content analysis of these 124 studies, I found that none of the formerly-mentioned studies investigated Fuller’s (1969) concerns theory in conjunction with video playback and coaching, which further confirms the uniqueness of my primary study. Additionally, the content analysis sheet that was developed inductively during the review (see Appendix A, A1) aided me in developing a theoretical framework of the interventions, outcomes, and impacts of TA studies that were further organized under covariates, independent variables, and dependent variables (see Appendix A, A2).

**Covariates.** The dissertation and thesis studies have provided evidence that when investigating the professional development of TAs, there are certain things to consider about the TAs themselves and the stakeholders in their teaching performance. For one, TAs are a vast and diverse group that can be divided into...
several different subgroups according to attributes such as gender, nationality, age, degree program, ethnicity, career aspirations, culture, prior experience, nature of TA assignment, and others (see Appendix A, A1). These attributes can influence how well training is received and how well equipped TAs are to perform their work. Therefore, these attributes must be noted whenever possible.

The most striking attributes are degree program and nationality (e.g., Belnap, 2005; Calder, 2006; Edwords, 2006; Herrington, 2003; Kim 2011; Lee, 1992; Liaw, 2004; Luo, 2000; Meesuwan, 1992; Westwick, 2003). For one, the degree program may vary in subject area and level (e.g., from undergraduate student TAs working on their bachelor’s degree to graduate student TAs working on their master’s or doctoral degree). For another, the nationality may vary from U.S. citizen to English-speaking international student to English-as-a-second-language international student. However, the language is not the only consideration here—as uncovered in some of the mixed-methods and qualitative studies. Culture of origin and resulting cultural perspectives are other attributes in relation to nationality that are important. For instance, in one study the TAs from other cultures had past experiences in which the teacher is only treated with considerable respect and had found it difficult to adapt to the level of respect American students gave them (Tavana, 2005).

The most important stakeholders in the professional development of a TA are the undergraduate students who receive instruction from said TA.
Undergraduate students also have a large range of characteristics to consider when concerning their reception and understanding of the TA’s instruction. Undergraduate students are as diverse as the TAs, differing on variables such as gender, nationality, age, subject area, ethnicity, career aspirations, culture, prior experience, and multicultural awareness (see Appendix A, A1). These attributes can play an important part in research efforts to develop a better understanding of how well the material the TA is teaching is being received and understood. Therefore, these attributes must be noted when possible—especially when collecting data from the students themselves. For instance, a mixed-methods study by Plakans (1994) provided evidence that there is a statistically significant relationship between certain characteristics and experiences of undergraduates and their attitudes toward International TAs.

Other stakeholders that are concerned with the professional development of TAs are faculty and administrators. Faculty are important to consider because many were TAs before they became professors (Un, 2006). Whether or not TA training is supported by faculty is another important consideration to make, as TAs often value what the faculty value (Blackburn, 1993; Graff, 1994; Lumsden, 1989). Lastly and most importantly, a TA is supported and given directions as to what to teach in their class by a faculty supervisor (Avci, 2012; Janssen, 2012). Other important stakeholders are the university administrators and training program administrators (de Berly, 1998; Edwords, 2006; Vaughan, 1992). Often training
programs require monetary support from the university to maintain function, which requires the support of university administrators for these programs to subsist. Training program administrators are important in that they have control over the design and curriculum of teaching training (Peterson, 2004).

**Independent variables.** In my review, I found a number of interventions that I will discuss here using the organization of professional development methods established by Joyce and Calhoun (2010). Their system of organization divides the various forms of professional development into five different categories: (a) Supporting the Individual Educator, (b) Personal/Professional Direct Service Models, (c) Curricular and Instructional Initiatives, (d) Collaborative & Cooperative Models, and (e) The Workshop Way of Learning. The first category, Supporting the Individual Educator, focuses on the individual person and provides opportunities for people to customize their development. Personal/Professional Direct Service Models are designed to help provide either open-ended or structured one-on-one assistance to others by trained peers or professionals (e.g., mentoring or coaching). Curricular and Instructional Initiatives are focused on particular teaching strategies or curriculums being enacted by groups. Collaborative and Cooperative Models are school-wide operations where the development of learning communities is a central purpose (e.g. action research). Finally, The Workshop Way of Learning is the most common method of the state or district providing professional development in that it consists of several different topics kept short to
suit the many different work schedules (e.g., GTA workshops and seminars). These categories will further clarify how the TA professional development world relates to the world of teacher education.

Forty-three of the 124 dissertation studies provided a description of a TA development program in enough detail that I could organize them into these five categories. None of the studies fit into the Supporting the Individual Educator category—most likely because of the unique situation of TAs in taking on a job that is not necessarily their future profession. Individually supporting the professional development of TAs is a big financial commitment particularly when that may or may not be those TAs’ choice of a career. Two studies fell into the Curricular and Instructional Initiatives category (Brennan, 2011; Ezrailson, 2004). Similarly, there were three studies that fell under the Collaborative and Cooperative Models category (Bognár, 1999; Brown, 2012; Morrison, 2002). Both of these categories involve massive undertakings; the first involving the restructuring and reorganization of curriculum and the second involving a department-wide or school-wide implementation. The reason why so few have attempted to implement these methods may be due to the difficulty in obtaining the cooperation of the groups of people in charge of the curriculum, department, or school.

The most common form of professional development for TAs fell under the workshop category. Thirty-two dissertations studied programs that delivered professional development sessions that could be covered over the course of hours
(e.g., Hardre, 2002), days (e.g., Boman, 2008), weeks (e.g., Ingram, 2001; Lumsden, 1989; Trouba, 2009), or a semester (e.g., Coimbra, 2002; de Rezende, 2012; Kwako, 2005; Peterson, 2004; Rine, 2009; Sulpizio, 2010). These workshops also varied as to when they were held. For instance, some occurred pre-semester or before the TAs’ assignments began their assignments (e.g., Boman, 2008; Lumsden, 1989; Stevens, 1988), whereas others occurred during the semester (e.g., Ingram, 2001; Coimbra, 2002; de Rezende, 2012; Kwako, 2005; Peterson, 2004; Rine, 2009; Trouba, 2009).

Workshops may be held for TAs by department (e.g., Belnap, 2005; Doe, 2001; Kinney, 2007; Lumsden, 1989; Peterson, 2004) or campus-wide (e.g., Boman, 2008; Ingram, 2001; Smithee, 1990). Workshops may be mandatory (e.g., Boman, 2008; Peterson, 2004) or voluntary (e.g., Boman, 2008; Ingram, 2001; Trouba, 2009). International Teaching Assistants might be singled out for a training (e.g., Coimbra, 2002; de Rezende, 2012; Numrich, 1991; Pekofsky, 1988) or combined with all TAs (e.g., Boman, 2008; Hardre, 2002). The GTA Seminar of Florida Tech may be described by each of these elements: it is a 3-day, pre-semester, campus-wide, mandatory program of sessions designed for the teaching development of domestic and international GTAs. Because TAs in general often lack prior education or experience in teaching, workshops are the common answer to fill this void of information. A more complete list of the different attributes of workshops may be found in the coding scheme (Appendix A, A1).
I found six studies that belong in the Personal/Professional Direct Service Models category. Three of these were formerly discussed in the section on coaching and sociocultural theory (e.g., Carlson, 1994; Nelson, 2000, Trouba, 2009). Another two studies also applied Vygotsky’s (1962) ideas, and were qualitative studies investigating mentoring (e.g., Emmel, 2002; Nehls, 1998).

The requirements of the six GTAs in Emmel’s (2002) study were a weekly 1-hour seminar, three interviews, and two observations. However, the focus of Emmel’s study seemed to be more about the pedagogical training that participants received during the seminar than mentoring. Nehls (1998) defined her interpretation of mentoring and provided a thorough literature review on mentoring. She employed the use of a survey based on Hill, Bahniuk, Dobos, and Rouner’s (1989) Mentoring and Communication Support Scale. She found that only a modest amount of peer mentoring was happening at the University of Nevada on an informal basis among GTAs. For future research, she recommended that GTA peer mentoring be examined in more detail. The sixth study used a true-experimental design to investigate the use of individual conferences and micro-teaching sessions to promote selected teaching procedures (Rodriguez, 1982). He concluded that the training program did have an effect after 7 days, but it did not last. Thirty days after the training there were no significant differences between the two groups. It was unclear why there are not more of these types of service models being studied. Perhaps due to the lack of strong evidence on the benefits of Personal/Professional
Direct Service Models, the cost in resources to provide this type of professional development may not yet be seen as justifiable in terms of benefits.

**Dependent variables.** Dependent variables may be organized as outcomes and impacts. Outcomes are short-term or immediate changes that occur, and impacts are longer-term changes (Knowlton & Phillips, 2013). Both are important to TA professional development research. Both TA outcomes and student outcomes may be the result of a TA professional development training.

TA outcomes may be changes in self-efficacy (e.g., Boman, 2008; DeChenne, 2010), teaching effectiveness (e.g., Ingram, 2001; Lumsden, 1989), and/or teaching practices (e.g., Bognar, 1999; Ingram, 2001; Trouba, 2009).

Student outcomes may include changes in academic achievement (e.g., Davis, 1984; Johnson, 1998) and perceptions (e.g., Allen, 2000). The impacts for TAs may be longer-term changes in their teaching beliefs (e.g., Bognar, 1999; Ezrailson, 2004; Peterson, 2004), teaching practices (e.g., Bognar, 1999; Ingram, 2001; Trouba, 2009), and career aspirations (e.g., Bomotti, 1994). Because studies of student impacts were less common among dissertations, only one study was located that investigated TA impacts on student beliefs (Damron, 2000). Student feedback in the form of midterm or end-of-course evaluations may serve as an impact or outcome for TAs.

**Fuller’s theory and TAs.** I located three publications in the recent literature regarding TAs and Fuller’s (1969) stages of concern. The most recent of
these publications investigated how the amount and type of training affect a GTA’s progression through the stages of concern and what general concerns they have in regards to teaching (Ferzli et al., 2012). Ferzli et al. focused on the Certificate of Accomplishment in Teaching (CoAT) program, which was established in 2006, as a basis of comparison for the effectiveness of training. The target population was graduate students at a Tier 1 research institution who had held a GTA appointment from 2005 to 2010. Nearly 2000 students were contacted by email and asked to fill out an online survey. Participation in the study was anonymous and voluntary. Those who were willing to be interviewed were asked to indicate they would volunteer for that part of the study. There were 206 survey respondents, 68 of whom were excluded due to their lack of direct teaching experience and 8 of whom volunteered to be interviewed for the second part of the study. This was a mixed-methods study that collected data via the Stages of Concern Questionnaire (SoCQ), which was designed to quantitatively evaluate concerns with respect to the implementation of innovative, non-traditional teaching methods in the classroom. A case-study approach guided the analyses of the interviews.

The findings of both the survey and interviews by Ferzli et al. (2012) suggested that GTAs who have participated in well-designed pedagogical training programs or who have an amalgamation of the elements of these programs have the tendency to be farther along in their progression of the Fuller’s (1969) stages of concern. In addition to training focused on pedagogy, the results indicated that
GTAs also benefit by strong exposure to mentoring, evaluation, and reflection. The SoCQ data revealed that although GTAs who received training made progress toward the impact stage of Fuller’s concerns, they continued to struggle with the lower stages. The lower-stage issues these GTAs expressed included: balancing their multiple roles, managing the duties of teaching, creating a positive classroom environment, developing and maintaining self-confidence in teaching, procuring access to resources, keeping students engaged and motivated, establishing professional boundaries, and effectively managing time to complete instruction of all of the assigned content. Reflecting on these results, Ferzli et al. (2012) commented,

We think this underscores an ongoing crisis in that although GTA teaching responsibilities are increasing as universities rely on them for teaching undergraduate courses, we think they have access to very little training, and they may lack basic teaching skills and experiences (Austin 2002; Civikly & Hidalgo, 1992; Darling & Dewey, 1990; Feezel & Myers, 1997; Luo, Bellow & Grady, 2000; Nyquist, et al., 1991; Prieto, 1999). (p. 254)

Ferzli et al. (2012) offered five implications for TA training programs from his study. The first was inferred from survey responses where GTAs gave low collaboration scores to their time management issues and interview responses about the benefits of exchanging ideas and resources with experienced peers. The low collaboration scores were interpreted by Ferzli et al. as attributable to the
respondents working alone in isolation to address their time management issues. From this information, the first implication was that it is ideal to establish GTA learning communities within and across disciplines. The second implication, derived from the GTAs’ struggle to understand the direct value of teaching innovations, was that GTA training programs need to clearly communicate the direct benefits of teaching professional development and establish rewards for the GTAs who volunteer their time to benefit from these programs.

The third implication was that strong mentorships should be established so that GTAs may receive constant feedback as they develop. GTAs made prominent in their responses that it was important to have someone to discuss their teaching experience, to get feedback from on their instruction, to review their assessments, and to ask timely questions. The fourth implication was that GTAs need a system in which they can continuously evaluate their progress because most of them are incapable of that sort of reflective practice on their own. They often relied on their students’ opinions about them, the class, or assignments instead of determining whether specific learning outcomes were accomplished.

The fifth implication was that TA development should be implemented as a longitudinal continuum of opportunities for GTAs. Although, the teaching circumstances of GTAs vary across disciplines and institutions, the need for consistent and ongoing GTA training emerged from the study findings as a crucial part of teaching development for all GTAs. Ferzli et al. (2012) encouraged the
following guidelines for training programs: provide GTAs with mentors and/or supervisors who are dedicated to the ongoing support and guidance of GTAs, tailor programs to issues common to all teachers and specific to GTAs, and recognize the GTAs’ stage of development. Ferzli et al. further reported that teaching quality, and, hence, teaching development, is important when considering that GTAs teach foundational classes in undergraduate programs. Additionally, if TA development leaders intend that GTAs put forth an effort in their teaching development and work, then they need to know that both of these efforts must marshal the same kind of respect within the university that is common to research.

There are important issues to consider when reading the Ferzli et al. (2012) publication. For one, the SoCQ is a quantitative instrument, yet there are no statistics reported within the paper to support any of the claims related to the interpretation of the results of the SoCQ. This issue may be related to another issue—sample size. A total of 138 surveys were deemed usable for the study. However, there were three groups based on levels of training that totaled 174: no training group, \((n = 117)\); fewer than six workshops group, \((n = 36)\); and more than six workshops group, \((n = 21)\). It is not clear how to interpret this apparent discrepancy. Further, among the 138 usable surveys, only 12 were CoAT alumni. This is a research concern because the CoAT program was a means of comparison for training effectiveness. Not only is 12 a small number to serve this purpose, but the evidence for the selection of the CoAT program as being an effective program
was self-reported and speculative as the researchers gave no evidence of the effectiveness of the program other than a description of what it provides participating GTAs.

The second publication dealing with Fuller’s (1969) stages and TAs attempts to expand Fuller’s model by adding role conflicts and communication issues as additional concerns of GTAs. Cho et al. (2011) employed three research questions in this investigation with the intent to uncover: the conceptual structure of GTA’s concerns, the relationship between the concept of teaching concern and GTA’s perceived value and confidence in teaching, and the influence of teacher variables on GTA concerns. The ethnicity of the 228 GTA participants was 0.5% African American, 6.7% Latino 13.5% Asian/Pacific islander, 64.2% Caucasian, and 15.1% unspecified. The participants (62% female, 37% male, and 1% unspecified) represented various disciplines from a large southwestern research-oriented university in the United States. They were contacted by email and asked to participate in the online survey containing two instruments. One instrument was a Teacher Concerns Checklist modified by Rogan, Borich, and Taylor (1992) and further modified by the researchers to include the GTA-specific subscales of role concerns and communication concerns. The other instrument was the teacher efficacy measure developed by Tshannen-Moran and Hoy (2001).

The result of exploratory factor analysis revealed five categories of GTA concerns as conceptually distinct yet related: class control (self concern 1), external...
evaluation (self concern 2), task, impact, and role/time/communication concerns. Role and communication concerns were perceived by GTAs as separate factors, although, they emerged as a combined factor in the analysis. Also, the mean score of this new category was relatively higher than those of other categories. This extension of the concerns framework suggests that role/time/communication concerns contribute greatly to the understanding of GTA concerns, and provided further evidence that original concerns model proposed by Fuller (1969) does not adequately depict the concerns of GTAs.

When role concerns were added to the conceptual framework, the time-management factor was extracted from the task concerns of the Fuller model and combined with role concerns for the modified model, leaving teaching strategies and professional development issues as descriptors of the task category. Although there is a hint of the complexity of the unique nature of GTAs in that their concerns about role, time management, and communications are interrelated, Cho et al. (2011) warn that this result warrants further investigation due to the limitation that this was based on only two items used to assess communication concerns. It is further stressed in the article that this limitation may apply in a broad sense because of the diversity of GTAs in ethnicity, nationality, and culture.

To clarify the concept of a concern, Cho et al. (2011) designed an instrument that investigated the GTAs’ perceived value of and perceived confidence in a list of teaching issues. This design helped them to find that the
GTAs’ perceived value and confidence correlated with whether or not they had concerns with impact-related issues. They observed that GTAs tended to have concerns about self, task, or role-related issues when these issues were seen as being valuable but difficult to manage. GTAs were more likely to have impact-related concerns when these issues were seen as valuable and manageable. From these findings, Cho et al. (2011) conceptualized impact concerns as growth concerns and the other types of concerns as deficiency concerns. Drawing from this evidence, the researchers recommended that professional developers focus on GTA support structures that encourage the growth of GTAs’ confidence so that they may be more likely to have impact-related concerns.

Another interesting finding from the Cho et al. (2011) study was that the GTAs’ characteristics would correlate in some instances with their concerns. For instance, teaching experience negatively correlated with self-related concerns, suggesting that it is a factor in reducing self concerns. Teacher efficacy positively predicted impact concerns. Cho et al. (2011) suggested that professional development strategies that promote teacher efficacy may encourage the GTAs’ drive toward impact concerns. GTAs were more likely to be concerned with impacts on student learning the more they valued teaching practices and participated in teaching and learning professional development opportunities. However, it was unclear to the investigators which direction was the true nature of this relationship. GTAs’ value of teaching practices was evidenced to predict their
role/time/communication concerns. Due to these findings, Cho et al. (2011) encouraged further investigation on the relationship of GTA attributes and task concerns. They stressed that professional development practitioners be aware of these linkages between attributes and concerns so that they can make proper decisions in helping GTAs move from deficiency concerns to growth concerns.

The third publication had as its purpose the development an instrument to measure GTAs’ teaching communication concern. Feezel and Myers (1997) recruited participants from all newly appointed GTAs enrolled at a large midwestern university, resulting in sample of 233 GTAs. The GTA respondents were composed of 109 males and 123 females; 43 international and 190 domestic students; and 87 doctoral and 143 master’s program students. Their ages ranged from 20 to 62 years ($M = 27.45$, $SD = 6.58$). These GTAs took part in a 1-week, campus-wide orientation program held prior to the Fall 1995 semester. A 15-item Teacher Communication Concern (TCC) scale was developed by Staton-Spicer (1983) and expanded and revised by the researchers. The changes instigated were: sharpening distinctions between self, task, and impact concerns; adding an impact item and modifying a task item; adding items dealing with role conflicts; changing responses from a 7-point Likert scale to a 5-point Likert scale; and returning to the use of the “I am concerned about” heading for the list of phrases. The result of these changes was a 21-item single page instrument, with a roughly equal number of items for self, task, impact, and role conflict.
Feezel and Myers (1997) sent out a background instrument asking about expected assistantship duties, years of prior teaching experience, years of residence in the local area, nationality, sex, age, degree program, and career aspirations along with a 28-item concerns checklist to each GTA. Although the concerns checklist had more items than the 21-item checklist mentioned above, it was decided that it would serve as an adequate basis for an estimate of concurrent validity. The participants completed the background and concerns instruments at the beginning of their orientation program and then returned the forms to their peer leader. By completing and returning the instruments anonymously, the GTAs had indicated that they had voluntarily agreed to participate in the study. The measure of GTA teacher communication concern was determined to be reliable (alpha = .86) with some construct and concurrent validity as a result of this study. The 21-item scale measures four areas of GTA teacher communication concern: class orientation, role conflict, communicating with students, and credibility. Both the Feezel and Myers (1997) study and the Cho et al. (2011) study have important implications for the instrumentation of my study. These implications will be discussed in the Instrumentation section of Chapter 3.

**Reflective practice and TAs.** There is a scarcity of research on reflective practice of TAs, as only three references were found in the literature. The earliest of these studies was a qualitative investigation by Supko (1997). The nature of reflection by four volunteer beginning GTAs of Spanish was examined based on
Cogan’s (1973) and Goldhammer’s (1969) original modes of clinical supervision. During the Fall 1996 semester, Supko (1997) acted as a professional development consultant in which all of her interactions with the participants were directed by the participants and, thus, free-flowing. Several audiotapes were collected from these interactions: pre- and post-observation conferences of four professional development cycles, two platform interviews, and three critical incident recall sessions with each participant. Supko’s analysis of data revealed that the GTAs’ reflections throughout the semester involved concerns which are often common to novice teachers in the survival stage (Fuller & Bown, 1975). Seven themes emerged from the data: managing the classroom, meeting the needs of the language learner, teaching skills, the communicative approach, ethics, the system, and change.

A second study was published by Ingram (2001). It examined whether the presence of reflective teaching training promoted GTAs’ use of Reiser and Dick’s (1996) instructional activities. This was a mixed-methods study involving a survey of all eight of the voluntary participants in a university-wide teaching workshop series and a case study of each of those participants while they taught at a large southeastern university. The survey helped determine the characteristics of all possible participants, their motivations to participate, and their motivations to teach, which was then used to assign TAs to either the control or reflective teaching group. The TAs were a diverse group from many disciplines and with a wide range
or prior teaching experience. The groups were selected using purposive sampling so that each of the groups was composed of similar disciplines and amount of teaching experience. Both the control group and the reflective group attended a workshop on the use of Reiser and Dick’s instructional activities; however, only the four GTAs in the treatment group received instruction, practice, and feedback on reflective thinking. The reflective training consisted of three seminars, each lasting about an hour and a half and scheduled approximately 2 weeks apart. Hampton and Reiser’s (2000) Instructional Activities Feedback Form (IAFF) was given to treatment and control GTAs’ students to assess their use of instructional activities and the students’ motivation.

Both groups in Ingram’s (2001) study were provided with a journal to record their reflections on their instructional practices as they worked their assignments through the semester. However, the reflective group was given instructions on how to use the journal for reflecting on not only their instructional practices, but also their use of Reiser and Dick’s (1996) instructional activities. The control group received very little instruction on reflection. There were five dependent variables in this study: GTAs’ level of reflective thinking, GTAs’ use of Reiser and Dick’s instructional activities, GTAs’ overall teaching effectiveness, GTAs’ motivation toward teaching, and the GTAs’ students’ attitudes toward instruction. The effects of the reflective thinking training on the five dependent variables were minimal. It was effective only in getting the treatment group to
reflect at level two, three, and a deeper level more often than the control group, but it was not powerful enough to cause a significant difference between the GTAs in any of the other four dependent variables.

The other dissertation that studied reflective practice and TAs used a grounded theory approach (Doe, 2001). In her study, Doe sought to understand the experiences of newly-appointed GTAs starting their work in college teaching while simultaneously participating in a rigorous teacher-training program. The participants in her study came from three different populations: the fall 2000 class of TAs in the English composition program at Colorado State University who are referred to as first-year TAs, second-year TAs, and faculty/supervisors of the composition program. Phase one of her study investigated the 6 first-year TAs in-depth. They first had a Life Story Interview (Atkinson, 1998) that ran approximately 60 minutes. At the close of the interview the TAs were reminded that the Teaching Log they were asked to keep was to be used daily as much as possible. During the course of the semester Doe collected the logs every week to search for critical events. If there was a suspected critical event, Doe would ask the TA to write a brief account of the event. These written narratives were then followed by reflective interviews where these events were discussed regarding their importance to the TAs’ teaching. At the close of the semester, Doe organized a Story Swap in which the first-year TAs discussed their most significant stories of
the semester with each other. The storytelling and discussion that ensued were recorded via videotape.

For phase two of Doe’s (2001) study, she had conducted two separate focus groups, one with second-year TAs and one with faculty/supervisors. Both groups were asked to comment on Doe’s interpretations of the data from the first-year TAs based on their own experiences to determine if they confirmed or contradicted the findings that came from phase one of the study. They also were encouraged to elaborate on their own experiences, histories, and concerns. The collection of data from multiple groups in phase two enhanced the internal validity of Doe’s study by data triangulation. In her conclusion of phase one and two, Doe presents a grounded theory for understanding teacher formation of GTAs. She further reported that the teaching development of GTAs is extremely complex, referencing several educational theories and models as relevant: Bereiter and Scardamalia’s (1987) knowledge-telling and knowledge-transforming composing models; Hillocks’ (1986) application of declarative/procedural knowledge differences to English education; Timpson and Bendel-Simso’s (1996) methodological fluidity model; Karge’s (1993), Moir’s (1990), and Boehr er and Sarkisian’s (1985) models of teacher concern development; Erikson’s (1980), Gilligan’s (1993), and Clark and Caffarella’s (1999) adult developmental theories; and Tannen’s (1996) workplace discourse theory. Doe further noted the importance of narrative data collection on
teaching experience and identity, as well as the recognition of the naturally occurring rhythms of teaching throughout the semester and year.

**Coaching and TAs.** Within the literature, doctoral studies were found in the literature that investigated the use of coaching with TAs. The earliest of the three was a quantitative study by Carlson (1994) that measured the change in teacher evaluation scores for a peer-coaching group and a control group using an analysis of covariance. The subjects were 32 GTAs in the English department during the 1993-1994 school year at Kansas State University, all of whom were in their first, second, or third year of the program at the time of the study. All of these master’s program GTAs were white, native-English speakers, and inexperienced teachers. One exception was a participant who was a German immigrant at age 4; she had teaching experience from being a swimming teacher and church-school teacher, and she was 38 years old—13 years older than the modal age of 25. She was placed in the peer-coaching group. In the Fall 1993 semester, there were six participants in the peer-coaching group and seven in the control group, whereas in the Spring 1994 semester there were 10 in the peer coaching group and nine in the control group. The gender representation in the groups was fairly balanced, but the experience level was stratified. For instance, the control group consisted of 8 first-year, 3 second-year, and 5 third-year GTAs, while the peer-coaching group had 12 first-year, 4 second-year, and 0 third-year GTAs.
Carlson (1994) held an introductory meeting early each semester to explain the program to both the peer-coaching group and control group. Afterward, peer-coaching participants were directed to find partners. The peer-coaching partners would complete at minimum one rotation during the semester and two or three rotations if possible. A rotation consisted of a classroom observation coupled with pre- and post-conferences for each of the partners. Peer-coaching participants attended monthly informational meetings at their convenience and were given documentation on both the purposes and guidelines for peer coaching; handouts were sent to those peer coaches who missed meetings. The control-group participants did not attend any meeting beyond the introductory meeting. Both groups provided released scores from their teacher evaluations prior to and at the conclusion of the semester of the study. These evaluations served the purpose of the pre- and posttest study design.

All 32 participants raised their scores significantly in both the amount they learned and teacher-effectiveness subscores. No statistical differences on teacher evaluation scores were found between the treatment and control groups either at the beginning or the end of the study. However, some notable differences occurred within subsets of the data. For instance on a scale of 1 to 5, the experienced peer coaching GTAs \((n = 4)\) raised their Teacher-Effectiveness scores .60 compared to .04 for the control group of experienced GTAs \((n = 8)\). The problem was that the
sample size was too small to detect significance in this difference or generalize this result to a larger population.

Nelson’s (2000) doctoral dissertation described and analyzed a GTA peer-observation program. I would classify the peer-observations in Nelson’s study as Gordon’s (2004) expert technical coaching because it was done by four experienced TAs who focused on transferring training objectives into practice. The Academy for Excellence in Engineering Education initiated and conducted the TA Peer Observation Program to target major strengths, areas for improvement, and ideas for improvement of new TAs. Four experienced TAs were nominated by faculty and were trained on the goals, activities, and processes key to classroom observation and post-observation consultation. Twenty-four TAs from the Department of Physics at the University of Illinois at Urbana-Champaign participated in Nelson’s study during the 1998-1999 academic year. The Department of Physics was chosen due to its high level of support for the training and development of new TAs by providing departmental orientations and seminars in addition to the TA Peer Observation Program. Participation in the peer-observation program was mandatory for TAs in the physics department. This was a mixed-methods study that involved interviews, document reviews, and questionnaires. One-hour interviews were held with the TAs who were selected to be peer observers to understand their perceptions regarding the peer observations and the peer observation process. These interviews were conducted following the
distribution, collection, and analysis or questionnaire completed by the TAs who were observed. Observation forms were submitted to Nelson and analyzed for themes related to the research questions of the study.

Nelson’s (2000) findings supported the use of peer observations to improve the teaching of those TAs who had participated in the program. Nelson concluded that peer observations were valuable for the instructional development of all TAs, and the trained TA observers were critical to the success of the program. Clearly stated goals and a structured approach to observation helped to emphasize the importance of the program to TAs. Self-assessment forms encouraged the initiation of dialogue between the TA observers and new TAs. Initial observations were recommended to be scheduled early in the semester so that new TAs receive timely feedback and TA observers were able to coordinate multiple observations with multiple schedules. The success of the program greatly depended on the continued support from the department and college administrators as well as faculty.

The most recent dissertation study was a mixed-methods design by Trouba (2009) that set out to: determine the effectiveness of a teacher-training workshop on the teaching practices of graduate mathematics teaching assistants (GMTAs) at Montana State University, ascertain the effectiveness of peer coaching and observation as a follow-up to GMTA teacher training, and discover what may need adjusting in K-12 professional development models to suit GMTAs. Qualitative data were generated from semi-structured interviews that assessed the GMTAs’
application of strategies learned in the workshop as well as how they perceived the effectiveness of the six seminars and follow-up classroom component. The interviews were conducted by another math education doctoral student to increase the validity and reduce researcher bias. All 18 GMTAs were interviewed, and the interviews were recorded, transcribed, and coded for analysis. Data for the quantitative component of the study came from three sets of videotapes of the GMTAs teaching in their classrooms. The three points of monthly videotape recordings in the study were: (a) after the second seminar, (b) at the conclusion of the six seminars, and (c) at the completion of Phase 2. The Reformed Teaching Observation Protocol was established by Piburn and Sawada (2000) and used in his study to quantify the level of professional teaching practices of the GMTAs. Data were collected from the 2007 workshop as well to aid in comparison with the 2008 workshop, which consisted of one set of videotapes, semi-structured interviews, and a workshop evaluation survey.

Trouba (2009) had 11 volunteer GMTAs from the 2007 group and 18 volunteers from the 2008 group. The 2007 workshop differed from the 2008 workshop in that the former was similar to the training that had been running in the math department since 2003. Also, Trouba took no role in the design or implementation of the 2007 workshop, whereas he designed and presented each of the six seminars over the course of 6 weeks for the 2008 workshop. The 2007 workshop ran for 7 weeks and consisted of eight seminars each lasting 1.5 hours.
focusing on university policies, active learning teaching techniques, assessment strategies, motivation and engagement of students, and evaluations and feedback. The total time commitment, when counting the two classroom observations and the eight seminars for the 2007 workshop, was 14 hours. The first and last seminars were held by two graduate students, one with 2 years of experience as a GMTA, and the other with 1 year. Each of the other six seminars was conducted by a different presenter. After the second seminar GMTAs were told to observe a classroom of an experienced GMTA and then a week after that a new GMTA. They were given observation forms to fill out for each round of observation.

Trouba’s (2009) main focus in his study, the 2008 workshop, was implemented in two phases. Phase one was a 6-week seminar training workshop that Trouba designed to explore the use of K-12 professional development models with GMTAs. The topics of the six seminars were the following: (a) introductions, concerns, and policies; (b) reflective teaching; (c) active learning; (d) questioning techniques; (e) formative assessment; and (f) philosophies of teaching. Phase two was a 4-week treatment phase employing observations, feedback, and reflective components with either a classroom observation or peer coaching. Each seminar lasted approximately 2 hours and the five classroom components each lasted approximately 1.5 hours for a total time commitment of approximately 18 hours. The 18 GMTAs were divided into a peer-coaching group and an observation group to compare the impact of these methods. Because the GMTAs would work in pairs
for peer coaching and Trouba felt the need for precaution in regards to participant attrition, ten GMTAs were assigned to the coaching group and eight were assigned to the observation group. To ensure the best coaching atmosphere between the paired GMTAs, they were matched by the class they taught so that the content covered each day was familiar and relevant to the GMTAs in each pair as they participated in the coaching group. Also, they were likely to be more familiar with a GMTA they taught the same class with than any other due to course meetings.

The coaching process followed a well-defined format by experts in the field. All of the TAs in the peer-coaching group attended a 2-hour training led by Dr. David Yopp. Each week thereafter for the duration of 4 weeks, GMTAs met for about 1.5 hours a week to organize their schedules for peer coaching duties. The coaching process consisted of a pre-observation meeting, classroom observation, and post-observation meeting with the meetings lasting approximately 15 minutes each. In the pre-observation meeting, the GMTA discussed his or her lesson and goals with the coach—all the while focusing on the evidence-based strategies learned from the 2008 workshop. In the post-observation meeting, the peer coach gave feedback to the GMTA focusing on the objectives set in the pre-observation meeting. The quality of the coaching experience was recorded by all of the participants via the Coaching Reflection Instrument. The roles were reversed and the process was repeated so that every TA received feedback (Trouba, 2009).
The observation group made observations of GMTAs, adjuncts, and faculty—like what was done in the last part of the 2007 workshop. Following each observation, the GMTAs filled out an Observation Reflection Form in which they described what they had observed and how it impacted their own teaching practice. Each week the GMTAs observed a different instructor: a new inexperienced GMTA and a new experienced GMTA, a GMTA who had won the departmental teaching award, an adjunct faculty member, and a full professor that was either a mathematics education faculty member or who had won a teaching award. A total of five observations were conducted: two the first week of Phase two, and one per week for the next 3 weeks. Every Wednesday the participants in the observation group met with Trouba for roughly 40 minutes to discuss their observations for that week. Therefore, the total time commitment for this group was the same as the coaching group’s 1.5 hours a week for 4 weeks (Trouba, 2009).

Trouba (2009) compared the effectiveness of peer coaching to classroom observation with GMTAs in a university setting. He hypothesized that peer coaching would be a more effective form of feedback than observation in helping the GMTAs use the strategies they learned in the workshop. However, he found that this was not the case and attributed this finding to the difference between peer coaching in a K-12 setting and a university setting. The peer-coaching model assumes teachers have the desire to improve their teaching. Although this may be true for K-12 teachers, it was not entirely the case for GMTAs. Some were content
to continue with their current style of teaching (2 of 18). Others had no intention of continuing their careers in academia (7 of 18), with 4 of 7 feeling no need for improvement. The majority of both the observation group and the coaching group expressed how observing others positively impacted their teaching. In fact, only 2 of the 10 coaching group participants found that the discussions used in coaching were helpful. According to Trouba, these results suggest that most of the participants viewed the coaching discussions as less helpful than simply observing their peers. Another reason the use of observation was seen as more beneficial than the use of coaching was that the participants’ unwillingness to change did not affect the other members of the group. Trouba concluded that whatever added benefits of peer coaching that were gained were overcome by the time, organization, and pairing requirements necessary for GMTAs.

Trouba’s (2009) qualitative analysis identified five constructs that seemed to affect the impact of peer coaching. The most critical of these constructs was “an interest in improving one’s teaching” (Trouba, 2009, p. 189). If participants didn’t have an interest in effective teaching, then they would not put any effort into peer coaching. In this case, coaching had very little impact on them and also limited the impact on their coaching partner. The second construct was a “willingness to work with another to improve” (Trouba, 2009, p. 189). The third construct was that “participants should be open to giving and receiving feedback and feel both they and their partner have the authority to give feedback” (Trouba, 2009, p. 190).
Instead of seeing the coaching role as facilitating discussion and reflection, many of the GMTAs believed it was based on providing evaluative feedback. Some GMTAs were uncomfortable with giving feedback whereas others were uncomfortable with receiving feedback. This limited the coaching process and denied participants valuable information that could have impacted their teaching. The fourth construct was “a willingness to schedule and spend time with coaching” (Trouba, 2009, p. 190). Even though some GMTAs were interested in improving their teaching, they were still not all willing to schedule the time necessary to perform this task properly. The fifth construct was “a good relationship and an opportunity to select a partner” (Trouba, 2009, p. 191). The members of groups that were allowed to select their own partners had a more productive peer coaching experience than the groups that did not. Participants of one peer coaching group had all five constructs present, and they were the most successful. Findings indicated that the more constructs a group shared, the more productive it was as a coaching group.

Trouba (2009) recommended that his study’s workshop model be tested in a large, randomized setting. He also suggested that peer coaching may work better in a setting where GMTAs are more motivated to improve their teaching and are more interested in peer coaching. In reference to the five constructs of successful peer coaching that he derived, Trouba further asked the question: “How critical are these constructs to the effectiveness of peer coaching in a GMTA setting and are there additional constructs?” (Trouba, 2009, p. 198). There is still much more
information to collect about GMTA peer coaching because the research base is so sparse. Trouba ended his recommendations for researchers by questioning the possible addition of pedagogical content knowledge to GMTA studies. It was not emphasized in his study, so there are several questions that arise when considering the proper introduction of pedagogy to GMTAs and how this might affect them.

**Research on video playback.** One recent study was found and provided assistance with the structure of my study. Tripp and Rich (2012b) provided me information as to what I should prioritize in using video playback as a method of professional development.

*Tripp and Rich.* The purpose of Tripp and Rich’s (2012b) review of studies was to help educators make more informed decisions about how to construct their own video self-confrontation procedures for professional development. Sixty-three studies were found in which participants recorded their own teaching, viewed their performance on video, and reflected on that performance. Tripp and Rich (2012b) explored the ways video has been used to reflect on teaching, the practices implemented to foster reflection, and the ways in which video self-confrontation has affected teaching. They identified six variables on which studies tended to vary: “(1) type of reflection tasks, (2) the guidance or facilitation of reflection, (3) individual or collaborative reflection, (4) video length, (5) number of reflections, and (6) ways of measuring reflection” (Tripp & Rich, 2012b, p. 680).
The types of reflection tasks Tripp and Rich (2012b) listed were codes or checklists, written reflections, video editing, and interviews or conferences. All reflection tasks except video editing were found to be helpful to teachers in reflecting on their own teaching. Only half of the six studies that investigated video editing found a significant difference between teachers who used video editing for reflection and those who did not. Throughout the discussion of the first three of the six variables, a recurring theme emerged: teachers tended to prefer reflecting on their teaching experience verbally with other people, such as their peers, supervisors, or colleagues. Pre-service teachers especially valued the viewpoints of others over their own viewpoints (Rich & Hannafin, 2008). The use of a reflection framework also aided teachers greatly in their ability to reflect on their teaching by providing them focus and preparing them for discussing their teaching performance; however, teachers reported that they desired to choose their focus for a reflection framework.

Tripp and Rich (2012b) discovered there was very little research that has been performed on video length and number of reflections. On video length, one study found that reflecting on three minutes of classroom teaching is far too little. Another study found that an entire class period was far too much to reflect on. On number of reflections, another study by Tripp and Rich (2012a) noticed a “saturation effect” when teachers felt the changes they made were “good enough” after three to four reflections and then moved on to other concerns. As of yet, there
are no other studies that have reported similar findings against which to make comparisons. Most research did not look into the number of reflections to understand what is optimal for teacher growth. Further research on both video length and number of reflections was urged by the reviewers.

There were six different ways of measuring reflection as determined by Tripp and Rich (2012b). The two most common ways were to analyze reflection comments and have participants give their perceptions of effectiveness. In reviewing reflection comments, one study noticed that teachers shifted from a focus on themselves to a focus on student thinking when using video (Yerrick, Ross, & Molebash, 2005). When asked for their perceptions of effectiveness in video reflection, many teachers felt that reflecting aloud with both a supervisor and individually was more important than doing one or the other. The majority of teachers perceived video reflection as a beneficial process for their teaching growth and development. The least often used ways of measuring reflection were self-assessment of reflection ability and accuracy of coding. Each had only one study associated with it. The last two ways of measuring reflection were changes in teaching practices and pretest/posttest scores. All of the studies measuring change in teaching practices reported improvements in their participants’ teaching due to video reflection. However, only one of those studies compared teachers who used video to reflect versus those who did not. One of the studies that used a pretest/posttest measure called the Video Self-Report Form, found that teachers’
responses shifted from focusing on themselves to focusing on their students after having participated in video reflection (Martin-Reynolds, 1980).

Summary

Fuller’s (1969) concerns theory, reflective practice, sociocultural theory, and social cognitive theory have all been chosen not only because they have been important in education research, but also because they complement each other. Fuller’s (1969) theory allows participants to choose the focus of their self-reflections. Sociocultural theory allows the participants a means of obtaining another point of view for self-reflection. Social cognitive theory helps determine whether GTAs are prepared to reflect with minimal guidance. Reflective practice could tie everything together in that it possibly relates to each of the other theories in use in my investigation. Other TA studies have benefited from employing Fuller’s (1969) theory, reflective practice, and sociocultural theory as guides for their research. All of these studies have provided me insights as to how I should design and carry out my study, what I should be aware of, and what mistakes I should try to avoid.

Regarding GTAs and Fuller’s (1969) theory, Ferzli et al. (2012) stressed the importance of GTAs having a system in place so that they may continuously evaluate their progress and having someone with whom to discuss teaching experience, get feedback, and ask questions. Ferzli et al. (2012) also reported that GTAs seemed incapable of reflective practice on their own and needed
development opportunities to be implemented on a longitudinal continuum. My study provided professional development sequence participants with the opportunity to continuously evaluate their progress, get feedback (video and/or coaching), and ask questions (if in a coached group) over the course of a semester. I also explored one group of participants’ ability to reflect on their own.

In working with TAs and reflective practice, the Ingram (2001) article gave me evidence that the evaluation of the GTAs’ level of reflection could be an important piece of information in my study. Further, Doe’s (2001) and Supko’s (1997) reference to teacher concern development supports my study’s use of Fuller’s (1969) stages of concern. Doe stressed the importance of narrative data collection, which supports the use of qualitative methods. The studies by Supko (1997), Ingram (2001), and Doe (2001) are important in gaining an understanding of TAs and reflective practice; however, more research is needed. To further the scope of TA reflective practice studies, my investigation has set out to obtain a larger sample size and compare how different professional development sequences may influence participants’ reflections.

With respect to coaching, I would expand on Trouba’s (2009) statement of the scarcity of peer coaching research with GTAs to say that there are very few studies on coaching in general with TAs. All three of the coaching studies reviewed here have investigated only two types of coaching: peer coaching and technical expert coaching. Also, all three look at specific groups of TAs: Physics; Math; and
English TAs. I hope to expand on this by working with GTAs from multiple subject areas and employing responsive-expert coaching.

Trouba’s (2009) conclusion that observations may be more beneficial than peer coaching may be explored further in my study in that there are group members that will solely observe themselves teach, will solely receive coaching, and will observe themselves and be coached. However, a noteworthy difference is that Trouba’s group of observing participants was observing other people, whereas the participants in my study only observed themselves.

The Tripp and Rich (2012b) article informed me of the importance of teachers both reflecting on their own and reflecting with another person, which is the reason why two treatment groups had coaching and one did not. They also stated that teachers desired to choose their own focus for reflection. This gave me cause to choose responsive coaching so that I may allow the participants to drive the focus of their teaching feedback and, hence, their self-reflections. My study employed the use of reflection journals and coaching because written reflections and interviews were evidenced as helpful in the Tripp and Rich (2012b) article. Finally, only one study was found by Tripp and Rich (2012b) that compared participants who used video versus those who did not to reflect. My study should add to that number.

Both the Carroll (1980) and the Levinson-Rose and Menges (1981) reviews stressed the need for an improvement on the quality of research by providing more
information on variables and expanding data collection to include cognitive, emotional, and developmental experiences. The design of my research followed this advice by collecting pre-treatment measures with the BIS; providing sufficient operational definitions of variables; obtaining background information on subjects; and providing participants the opportunity within their reflection journals to disclose anything of a cognitive, emotional, or developmental nature.

Levinson-Rose and Menges (1981) further recommended that researchers treat participants as collaborators and compare feedback alone to feedback with consultation. Responsive coaching provided the means to treat the participants of my study as collaborators, because they chose the focus of the coaching with their concerns. My study also compared feedback alone to feedback with consultation, because one group received feedback only in the form of a video of their teaching and another group will receive both the video and coaching feedback.

The theories and research mentioned in this chapter helped guide me in designing my study to investigate GTAs’ concerns, self-reflections, and practices when implementing three different professional development sequences. The professional development sequences were: coaching, video playback, and coaching paired with video playback. Coaching was implemented in a responsive manner. Video playback was implemented by providing GTAs with a DVD recording of their instruction and by having them watch the video to reflect on their teaching. The last professional development sequence was a combination of the first two.
As informed by research, I used the BIS to collect background information on participants. The BIS data assisted me in assigning individuals to groups to maximize variation. I observed each professional development sequence group three times over the course of 1 semester. At the end of each observation, I asked the GTAs to complete the reflection journal that corresponded with their observation. The data I collected included observation sheets, reflection journals, videos (when the GTA was filmed), interviews (when the GTA was interviewed), and student evaluations (when provided by the GTA or supervisor). The final piece of my data points, the TCQ, was administered to the professional development sequence groups and comparison group before the study began and after it concluded.
Chapter 3
Methodology

The Research Setting: Florida Tech

The primary study was conducted during the Fall 2012 semester at Florida Tech, which gave my primary study a timeline of August through December in 2012. Florida Tech is located in south-central Brevard County within the city of Melbourne, Florida. Brevard County is an east-coast community that expands across 72 miles of shoreline. It is home to 543,566 people and the John F. Kennedy Space Center, SpaceX, Patrick Air Force Base, Northrop Grumman, and Harris Corporation. Florida Tech is the only Ph.D-granting independent, technological university in the Southeast with an enrollment of 16,000 students across the 2012-2013 academic year.

Sample

Florida Tech prepared 73 graduate students for GTA assignments in the Fall 2012 GTA Seminar. Once the seminar was over, I sent several emails to the attendees requesting their participation in my study for the chance to win a cash incentive (see Appendix D3). Sixty-five of those 73 seminar attendees met the criteria for participation in my study. A few GTAs at a time responded to my research participation request emails over the course of two weeks. Seventeen agreed to participate—one of those requiring guaranteed payment. Thirty-seven declined to participate—24 of those giving me reasons for their decline. To clarify
this lack of willingness on the part of the GTAs to participate, I emailed all GTAs 
who had either declined to participate or neglected to respond (48 total) and asked 
them to complete the Research Follow-up survey (see Appendix E2). Fifteen GTAs 
responded to the survey—nine of those had already responded with an email. Only 
five people did not respond to either the email or the survey. The majority of those 
GTAs who gave reasons for not wanting to participate felt that they did not have 
the time to do so (17 of 30). Due to these solicitation issues, I improved the terms 
of the incentive to encourage those who volunteered to stay in the study and to 
garner four volunteers to be in my comparison group. Comparison group 
participants each received $25 and professional development sequence group 
participants each received $50.

A total of 17 of the 65 volunteered to take part in my primary study (26%). The sample spanned four age groups 13 (76.5%) were ages 20-24, one (5.9%) was 
25-29, two (11.8%) were 35-39, and one (5.9%) was 50+ (Table 3.1, p. 91). It 
spanned three of the university’s Colleges; Engineering (47%), Science (47%), and 
Psychology and Language Arts (6%); and included four U.S. males, seven U.S. 
females, five international males, and one international female. All of the 
international GTAs in the sample were from India. All of the U.S. GTAs were 
Caucasian.
Table 3.1

Summary of Participants' Background Information by Group Membership

<table>
<thead>
<tr>
<th>Subject*</th>
<th>Sex^b</th>
<th>Age^c</th>
<th>Native Country</th>
<th>Acad. Unit^d</th>
<th>Degree Program</th>
<th>TA Exp^e</th>
<th>Related Exp^f</th>
<th>Type Exp^g</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Comparison Group</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mayukh</td>
<td>M</td>
<td>20–24</td>
<td>India</td>
<td>BioM</td>
<td>Master's</td>
<td>0</td>
<td>0</td>
<td>lab assistant</td>
</tr>
<tr>
<td>Lidia</td>
<td>F</td>
<td>25–29</td>
<td>USA</td>
<td>BIO</td>
<td>Master's</td>
<td>0</td>
<td>1–2</td>
<td></td>
</tr>
<tr>
<td>Matthew</td>
<td>M</td>
<td>35–39</td>
<td>USA</td>
<td>CS</td>
<td>Doctorate</td>
<td>0</td>
<td>1–2</td>
<td>instructor for graduate-level class</td>
</tr>
<tr>
<td>Melissa</td>
<td>F</td>
<td>20–24</td>
<td>USA</td>
<td>BIO</td>
<td>Master's</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td><strong>Coached Reflection Group</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reese</td>
<td>M</td>
<td>20–24</td>
<td>USA</td>
<td>MAE</td>
<td>Master's</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Andrea</td>
<td>F</td>
<td>20–24</td>
<td>USA</td>
<td>BIO</td>
<td>Master's</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Sharad</td>
<td>M</td>
<td>20–24</td>
<td>India</td>
<td>Chem</td>
<td>Doctorate</td>
<td>0</td>
<td>4–5</td>
<td></td>
</tr>
<tr>
<td>Renee</td>
<td>F</td>
<td>20–24</td>
<td>USA</td>
<td>DMES</td>
<td>Master's</td>
<td>1–2</td>
<td>1–2</td>
<td>grader; camp counselor</td>
</tr>
<tr>
<td><strong>Video Reflection Group</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yashraj</td>
<td>M</td>
<td>20–24</td>
<td>India</td>
<td>MAE</td>
<td>Master's</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Catrina</td>
<td>F</td>
<td>35–39</td>
<td>USA</td>
<td>PSY</td>
<td>Doctorate</td>
<td>1–2</td>
<td>&gt;6</td>
<td>TA; co-instructor</td>
</tr>
<tr>
<td>Robert</td>
<td>M</td>
<td>20–24</td>
<td>USA</td>
<td>BioM</td>
<td>Master's</td>
<td>0</td>
<td>1–2</td>
<td>tutor</td>
</tr>
<tr>
<td>Ruth</td>
<td>F</td>
<td>20–24</td>
<td>USA</td>
<td>Math</td>
<td>Doctorate</td>
<td>5–6</td>
<td>0</td>
<td>TA for College Success; tutor</td>
</tr>
<tr>
<td><strong>Coached Video Reflection Group</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Karen</td>
<td>F</td>
<td>20–24</td>
<td>USA</td>
<td>PSS</td>
<td>Doctorate</td>
<td>1–2</td>
<td>1–2</td>
<td>grader, tutor, instructor for Upward Bound</td>
</tr>
<tr>
<td>Ray</td>
<td>M</td>
<td>20–24</td>
<td>India</td>
<td>MAE</td>
<td>Master's</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Gargi</td>
<td>F</td>
<td>20–24</td>
<td>India</td>
<td>BIO</td>
<td>Master's</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Kalpesh</td>
<td>M</td>
<td>20–24</td>
<td>India</td>
<td>Math</td>
<td>Master's</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Randal</td>
<td>M</td>
<td>&gt;50</td>
<td>USA</td>
<td>DMES</td>
<td>Master's</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

Note. *Subject names are pseudonyms. ^b M = male, F = female. ^c Age given as a range in years as opposed to actual age. ^d BioM = Biomedical Engineering, BIO = Biology, CS = Computer Science, Chem = Chemistry, DMES = Department of Marine and Environmental Systems, MAE = Mechanical and Aerospace Engineering, PSY = Psychology, PSS = Physics and Space Sciences. ^e TA Experience = any experience as a teaching assistant preceding the seminar. ^f Related Experience = any classroom teaching experience preceding the seminar. ^g Type Exp^g = further elaboration on TA or related experience.
The participants were added to the “Reflection Study Group” community on ANGEL, and assigned to one of four groups by matching their characteristics to maximize variability within groups. These groups were: Comparison, Coached Reflection (CR), Video Reflection (VR), and Coached Video Reflection (CVR). Two participants were placed by request in the CR group because of the field circumstances of one participant’s class and the other participant’s discomfort around cameras (i.e., Renee and Andrea, respectively). After all participants were assigned, each group had four participants except for the Coached Video Reflection group, which had five.

**Design and Methodology**

My study employed a qualitative methodology with a case study design. Descriptive data were collected and developed for the participants of all four groups so that I could explore how video playback, coaching, and video playback combined with coaching influences their teaching concerns, self-reflections, and practice (see Appendix D1). Unless they were placed in the comparison group, GTAs were exposed to one of the three approaches noted above, and the influence of each on the participants in each group were observed and summarized.

**Instrumentation**

The instruments administered during my primary study included: the Background Information Survey, Teacher Concerns Questionnaire, the Teaching Assistant Post-Seminar Observation Form, Reflection Journals, and Ward and
McCotter’s (2004) Reflection Rubric. I will describe each of these instruments with regard to their creation, their contents, and how they were administered or implemented.

**Background Information Survey.** I created the Background Information Survey (BIS) following an in-depth review of the literature so that the needs of incoming GTAs could be assessed before entering the seminar (see Appendix E1). Once obtained, the information from the survey clarified the readiness and ability of seminar attendees to take on a GTA appointment and provided the seminar staff this information before the start of the seminar. As indicated in the research literature, this is often missing but very important information to have when designing and offering training programs to assist GTAs in their professional development. The design of and/or information from the BIS was used in both pilot studies as well as in my primary study. This information served as a baseline for each participant in the entrance pilot (see Appendix B) and primary studies, guiding GTA selection and assignment in the primary study, and supplying a vital source of data for use in data analysis. In addition, it served as a foundation for the creation of the Exit Survey for the pilot study of graduating GTAs (see Appendix C).

The BIS was designed to collect information about selected demographic characteristics, prior TA/teaching experience, degree program, schedule, GTA role, career aspirations, and perceptions of teaching and the GTA Seminar. Instruments from Hendry (1998), Ingram (2001), Notarianni-Girard (1998), and Tulane (2009)
provided insights into the selection and formatting of items from which the questions on the BIS were formed. The BIS consisted of a mix of multiple choice, essay, and Likert-scaled items. The reader is cautioned that responses to all of these items were self-reported and it is assumed that the participants responded with reasonably accurate reporting and recollection.

The BIS was administered through A New Global Environment for Learning (ANGEL) so that it could be easily accessed and answered by all of the prospective attendees before they attended the seminar. A week before each seminar began, prospective attendees were contacted via ANGEL email to request that they click on the survey link and complete the survey before attending the seminar. Five days later those who had not filled out the survey were reminded to do so. A third email was sent out to 30 attendees who had not completed the survey the day before the seminar began. For the Fall 2012 seminar, 93% of attendees completed the BIS prior to the seminar; however, a small percentage failed to respond (7%). Only 1 of the 17 participants did not fill out the BIS prior to the seminar.

**Microteaching journals.** Reflection journals were assignments seminar participants were required to respond to for the microteaching lessons they taught each day of the seminar. Questions were given to aid in reflection, but participants were open to respond or reflect on whatever they chose. These journals were administered through ANGEL (see Appendix E3).
**Teacher Concerns Questionnaire.** The Teacher Concerns Questionnaire (TCQ) is a 16-item instrument developed by Fuller and George (1978) that measures the self, task, and impact concerns teachers have about teaching. The first 15 items on the TCQ are measured on a 5-point Likert scale with responses ranging from not concerned to extremely concerned (see Appendix E4). The three scales, self, task, and impact, each have five Likert-scaled items on the TCQ. Respondents are asked to read each statement and then ask themselves, “When I think about my teaching, how much am I concerned about this?” (Fuller & George, 1978, p. 38). Fuller and George explained at the beginning of the instrument that they “consider you to be ‘concerned’ about a thing if you think about it frequently and would like to do something about it personally” (p. 37). The last item is an open-ended question for respondents to express additional concerns.

The TCQ was chosen over the Cho et al. (2011) instrument for several reasons. Foremost, the TCQ retains the original stages of Fuller’s (1969) theory: self, task, and impact. Secondly, the TCQ has been more frequently utilized in research. Finally, I chose the TCQ due to a comparison of instrument length. The TCQ is a 16-item instrument that is simple and easy to fill out (see Appendix E4). The instrument created by Cho et al. (2011) is excellent in that it is tailored to GTAs. However, it consists of 59 items, with each requiring three different responses. GTAs tend to be unwilling to forfeit a great amount of their time because they feel they have little left to give. I chose the shorter instrument in an
effort to increase the ease of recruiting and retaining participants in my study. In addition, the TCQ may capture much of the same information as the Cho et al. (2011) instrument in that there is an open-ended question at the end for respondents to volunteer unmentioned concerns.

The TCQ was chosen over the Feezel and Myers (1997) assessment because the TCQ provides the means to compare GTAs’ concerns directly to Fuller’s (1969) theory. The instrument developed by Feezel and Myers is a 21-item scale that measures concerns in four areas of GTA teacher communication: class orientation, role conflict, communicating with students, and credibility. Although these concerns are tailored to TAs, they do stray from the original Fuller scales of self, task, and impact and do not reflect preeminent concerns that were found in the my pilot studies very well.

The TCQ was adapted so that it could be administered through ANGEL, which allowed for the TCQ to be easily accessed and answered by all of the participants before the implementation of the treatments. Once consent forms were signed and returned, participants were contacted via ANGEL email to request that they click on the survey link and complete the survey before the beginning of the study. Five days later those who had not filled out the survey were reminded to do so by email.

**Teaching Assistant Post-Seminar Observation Form.** The Teaching Assistant Seminar Microteaching Evaluation form, which has been used for more
than a decade, was modified for the purposes of my study. Use of this form allowed me to access a source of data generated during the GTA Seminar. However, modifications were needed so this form could allow more detailed information to be collected. The original form contained four blocks that quantitatively assessed the presenter: lesson plan, effectiveness and use of visual aids, body language, and speech. The items are measured on a 5-point Likert scale with responses ranging from strongly disagree to strongly agree. The back of the instrument was used for qualitative data.

In the modified Microteaching Evaluation form, the Likert scale was replaced by a tally system. The + column would denote the number of times the behavior exhibited by the GTA closely reflected the statements and the – column would denote the number of times the behavior exhibited by the GTA did not reflect the statements. The other column was to note anything outside the confines of the tally system. Qualitative commentary boxes were moved from the back of the form to the front of the form and days one, two, and three were removed. Name of presenter was modified to Code number for GTA and Name of evaluator was changed to Name of observer. The title of the form was changed to Teaching Assistant Post-Seminar Observation Form (see Appendix E5). All of the statements on the original form remained the same on the modified form.

I used the TA Post-Seminar Observation Form to tally and describe the activities of the classroom. The focus of the observations was solely the words and
behaviors of the GTAs. Each time a GTA was observed a new observation sheet was filled out. At the end of my study, each of the participants except those in the comparison group, had three observation sheets associated with them. These observation sheets were coded, scanned, and stored for further analysis.

**Reflection journals.** I created the guiding questions for the reflection journal and modeled these questions after Fuller’s (1969) stages of concern. For instance, the first journal is composed of questions that ask the participants to reflect on themselves as teaching assistants and discuss what they think of their performance. Another question from the first journal asks how the GTA knows the students have understood what they’ve been taught. The second journal has a question addressing Fuller’s task stage and what problems they may have had with grading. The last journal asks a question in regards to the impact stage and asks the GTAs to discuss what problems they have had with time management.

Each of the three reflection journals consisted of three parts (see Appendix E6). First, participants were asked to provide the time, date, and class they would reflect on. Next, the GTAs were asked what responsibilities they had as GTAs and if they found themselves relying on information or experiences from the seminar to help them with these responsibilities. Finally, the GTAs were provided guided questions for self-reflection, asked to discuss other aspects of their teaching experience, and told to be as informative as possible about what they were going through as a teaching assistant, including any questions or concerns they have.
The reflection journals were administered through ANGEL so that they could be accessed and answered easily by all of the participants for each of the three rounds of the study. The GTAs were contacted via ANGEL email to request that they click on the reflection journal link and complete the journal after having been observed. Two days later those who had not filled out the journal were reminded to do so. Emails were sent out periodically until everyone completed the journals.

**Ward and McCotter’s reflection rubric.** The Ward and McCotter (2004) reflection rubric was chosen to establish the reflective quality of the GTAs’ reflection journals. The teacher reflection rubric was intended for use as a formative tool for pre-service teachers. In regards to research, Ward and McCotter (2004) wrote the following:

> Our reflection rubric would also work well as a research tool for evaluating the effectiveness of a wide variety of strategies designed to promote teacher reflection such as cases and journals as well as newer innovations such as the use of electronic portfolios and digital video. (pp. 255-256)

In some ways Ward and McCotter’s rubric parallels Fuller’s (1969) theory. For instance, the focus of reflection at each level appears to parallel one of Fuller’s stages of concern. The focus of reflection at the lowest level is about self-related concerns, at the next level of focus is task concerns, and at the third level is about student-related concerns. Ward and McCotter found that beginning teachers do not
often reflect at the higher levels and did not encourage teacher educators to ignore their pre-service teachers’ self-concerns. However, they did envision that pre-service teachers reach at least their dialogic level of reflection by the end of the formative process using the reflection rubric.

The reflection rubric Ward and McCotter (2004) designed consists of four levels of reflection and three dimensions of reflecting (see Appendix E7). The four levels are the following: routine, technical, dialogic, and transformative. Routine is the lowest level where the subject is self-disengaged from change. Technical reflection is when the subject responds to specific situations, but does not change perspective. Dialogic reflection involves cycles of situated questions and action, consideration for others’ perspectives, and new insights. The highest level, Transformative reflection is when the subject is asking fundamental questions and is changing. The three dimensions of reflection are: focus, inquiry, and change. Focus addresses the focus of concerns about practice. Inquiry involves the process of inquiry. Change addresses how inquiry contributes to changes in practice and perspective.

To help ensure valid and reliable scoring, Ward and McCotter (2004) explained how to use the rubric by describing a level of reflection (i.e., routine, technical, dialogic, and transformative), provided a sample of a journal that demonstrated that level, and then discussed how the sample meets the criteria of the level. For example, routine reflections were described lacking curiosity, blaming
other people or circumstances for problems, and lacking a sense of responsibility for change. The following was given as sample of a routine reflection:

The other barrier I found was the ability of many of my students. As an entire class, they did not have much experience working hands-on. I would have liked to teach many more concepts hands-on, but due to the lack of experience in the class it was not feasible. Classroom management was a problem the first few times we tried a hands-on activity. If this had been my classroom, students would have been familiar with my mode of teaching and classroom management would not have been an issue. When I taught my fall week I did not run into any classroom management problems because they knew my expectations. (p. 252)

According to Ward and McCotter, this reflection entry demonstrates a routine level in every dimension—focus, inquiry, and change. The reason for this was that the focus was on self-concerns, the inquiry did not show any doubt of the source of problems, and the change was unlikely because problems were blamed on other things.

After these discussions of each reflection level, Ward and McCotter (2004) discussed how some reflections might be a combination of reflection levels. One example given had both a routine focus on self as well as a dialogic level for inquiry. The reason for the routine rating was the writing was focused on self. However, this routine-focused reflection differed from typical routine-focused
reflections because the subject sought the opinions or perspectives of others to aid in the reflection of self. Also, the subject took on a personal responsibility in his/her development by focusing on self-improvement instead of blaming problems on other things.

The Research Context: The GTA Seminar

The GTA Seminar is a 3-day professional training that takes place before the start of the Fall and Spring semesters for new GTAs in different academic fields and units, and with various roles and responsibilities campus-wide. The goal of this training is to prepare attendees to become effective university course and lab instructors. The elements that comprise the curriculum of the GTA Seminar are behavioral objectives, Bloom’s (1956) taxonomy, reflective practice, and Kolb’s (1984) learning styles. Each morning consists of presentations by Florida Tech faculty, who prepare attendees for their afternoon sessions of microteaching. Each afternoon the seminar attendees meet in their assigned groups, teach micro-lessons within their discipline, and critique each other using forms entitled Teaching Assistant Seminar Microteaching Evaluation. The Microteaching Facilitator—a faculty member or an experienced GTA who also critiques the GTA attendees—holds these forms in confidence.

During the course of the seminar, attendees are presented with numerous tasks, including:
• writing measurable objectives at different levels of Bloom’s (1956) taxonomy,
• developing assessments that align with stated objectives,
• discussing the impact of learning styles in the classroom,
• explaining the importance of having an organized class,
• describing the characteristics of persuasion and relating them to teaching,
• creating a learning-friendly classroom environment,
• designing a plan or strategy to deal with conflicts that may occur in the classroom,
• explaining the role of non-verbal and cultural communication in the classroom,
• making use of various teaching strategies to improve instructional communication, and
• evaluating peers teaching using a rubric of effective teaching strategies.

The GTA Seminar is a requirement for all university GTAs and has been in existence for more than a decade.

**Procedures**

This qualitative approach involved the implementation of observations, interviews, survey instruments, video recording, reflection journals, and document analysis to obtain information/data about GTAs who had attended the Fall 2012 GTA Seminar and then volunteered to participate in my study. Once I received
approval from the Institutional Review Board to proceed (see Appendix D1), I used e-mail to contact those who had GTA appointments in the Fall of 2012. They were provided with a cover letter and consent form that explained how once they have volunteered to participate, they would be divided among four groups via matching: Comparison, Coached Reflection (CR), Video Reflection (VR), and Coached Video Reflection (CVR). All participants in these four groups were added to the ANGEL community, “Reflection Study Group.” This ANGEL study group provided the means to collect responses to the Teacher Concerns Questionnaire before and after the implementation of professional development sequences was run, as well as reflective journal entries for each of the three classroom observations conducted as part of the study.

For all participants except those in the comparison group, I collected microteaching journal responses from the GTA Seminar and arranged a schedule of classroom observations to take place three times over the course of the semester. The length of each observation varied, depending on the length of each class and/or lab (e.g., from 50 minutes to 3 hours). Because each professional development sequence group involved different types of data collection, I will describe each professional development sequence along with the data collection methods that were involved with that group. All groups responded to the TCQ before the implementation of observations and again after all observations were completed (Table 3.2, p. 105).
Comparison group. Members of the comparison group \((n = 4)\) were not involved in any professional development sequence. For data collection purposes, they responded to the TCQ before the beginning of the professional development sequences and after the conclusion of the professional development sequences. Thus, the resulting data collected from this group included the Background Information Survey, three microteaching reflection journal entries, the pre- and post-TCQ responses, and student evaluations.
Coached reflection (CR) group. Members of the coached reflection group ($n = 4$) were observed and interviewed by me three different times over the Fall 2012 semester (i.e., September/early October, late October, and early November). I did 20-minute interviews with these participants before and after I observed their classes. Because most interview questions were tied to observations, each interview included a set of informational, clarifying, and probing questions that were unique rather than structured (i.e., there was no protocol for interviews). During the pre-observation interview, the GTA’s plans for class and teaching concerns were discussed. I then observed the class and analyzed what was observed. Once I had observed the class, I held a post-observation interview with the GTA where I provided feedback from my observation and analysis in an interview setting. After the post-interview, participants in the CR group were asked to write in the reflection journal their reflections on their teaching during the time they were observed. The resulting data collected from this group included the Background Information Survey, three microteaching reflection journal entries, pre- and post-TCQ responses, three TA observation forms, six interviews, three reflection journal entries, and student evaluations.

Video reflection (VR) group. Members of the non-coached video reflection group ($n = 4$) were observed and filmed by me at three different times over the Fall 2012 semester (i.e., September/early October, late October, and early November). To keep this group a non-coached group, I had no interaction with
these participants other than to provide directions and arrange the next observation. Once each observation was finished, a DVD of the class was burned and provided to the participant. I instructed the participants to view, at a minimum, 15 minutes of their instruction on the video and then write in the reflection journal their reflections on what they had viewed or learned from watching the video. The resulting data collected from this group included the Background Information Survey, three microteaching reflection journal entries, pre- and post-TCQ responses, three TA observation forms, three video recordings, three reflection journal entries, and student evaluations.

**Coached video reflection (CVR) group.** Members of the coached video reflection group \((n = 5)\) were interviewed, observed, and filmed by me three different times over the Fall 2012 semester (i.e., September/early October, late October, and early November). I did 20-minute interviews with these participants before and after I observed their classes. As with the Coached reflection group, because most interview questions were tied to observations, each interview included a set of informational, clarifying, and probing questions that were unique rather than structured. For this reason, there was no protocol for interviews. During the pre-observation interview, the GTA’s plans for class and teaching concerns were discussed. I then observed the class and analyzed what was observed. Once the observation was finished, a DVD of the class was burned and provided to the participant.
I instructed the participants to view, at a minimum, 15 minutes of their instruction on the video and then meet for the post-interview. Once I watched the DVD and the participant watched the video, I held a post-observation interview with the GTA where I provided feedback from my observation and analysis in an interview setting. After the post-interview, participants in the CVR group were told to write in the Reflection Journal their reflections on what they had learned from both the interviews and watching the video. The resulting data collected from this group included the Background Information Survey, three microteaching reflection journal entries, pre- and post-TCQ responses, three TA observation forms, three video recordings, six interviews, three reflection journal entries, and student evaluations.

**Validity and Reliability**

There are issues of internal validity and reliability in quantitative research, which respectively deal with whether the instruments actually measure the concepts that the researcher intends to measure and whether the results are consistent (Ary et al., 2006). In qualitative research, these issues are covered as credibility, transferability, dependability, and confirmability (Guba, 1981). A brief description of each as they applied to this research follows.

**Credibility.** Credibility addresses how close the results of a study match reality. To establish credibility (Guba, 1981), data collection was done by triangulation using the Background Information Survey, Microteaching Reflection
Journals, Teacher Concerns Questionnaire, classroom observations, interviews (when applicable), videos (when applicable), reflection journals, and student evaluations as separate data sources to pertinent to the research questions.

**Transferability.** Transferability deals with the extent to which a study’s findings may be generalized. Detailed descriptions about every aspect of my study are provided so that the reader may determine whether the study’s findings may be applied to other settings.

**Dependability.** Dependability refers to the extent to which a study’s findings would remain the same if the study were replicated with either the same or similar participants under the same or similar conditions. All details of the study, including the sample, the procedures, and the results I obtained, were documented and described to maintain an audit trail to ensure the consistency of the study’s findings.

**Confirmability.** Confirmability is the extent to which a study’s findings reflect the participants’ responses and the conditions of the inquiry instead of subjective attributes such as personal opinions, biases, or interests. Confirmability is established by having an unbiased outsider conduct an audit. Although, no such audit was done for my primary study, the audit trail I have established may be used to confirm the study’s findings.
Data Analysis

Responses to the BIS were placed in Excel columns starting with the respondent code number and followed by each subsequent survey item. This was done so that responses to the same item could be compared across several different respondents. Further, responses to open-ended essay items were clustered together under categories. Once entered, these data were analyzed closely for high and low response frequencies, particularly similar responses across survey items. The most pertinent data were organized into tables by groups and then cases as described later in this chapter.

Due to the nature of this study and the small size ($n = 17$) of my sample, TCQ data were presented and interpreted on a descriptive basis only (e.g., no inferential statistical analysis), and were compared to related qualitative findings as part of my use of triangulation.

Recorded observations were reviewed for statements that are consistent with observations the participants themselves made in their reflection journals and/or interviews, as well as with observations students made in their evaluations of the participant’s teaching. In accordance with triangulation, these data represented three different sources: myself, the participating GTAs, and their students.

The level at which the subjects reflected was noted for each point in time they were asked to respond to a reflection journal. The quality of reflections was
analyzed on an individual basis over time, and then compared within groups and across groups. Aside from measuring reflection, the reflection journals also were used to glean key statements of interest such as concerns, observations, lessons-learned, practices, or changes. These statements aided me in developing case studies for each subject and performing within-group comparisons, which will be discussed later in this section.

**Development of individual case studies.** Due to a small sample size within each group \( (n = 4 \text{ or } 5) \), and the manner in which those participants were selected, a decision was made, with the input of my committee, to prepare a separate case study for each participant. Each of these case studies required the analysis of multiple data sets: data from the BIS, data from the TCQ, reflection journal entries, notes that I recorded during each cycle of participant observations and interviews, and, whenever possible, student evaluations. After describing each individual in detail for each case using a pseudo name, the TCQs, observations, interviews, and reflection journal data were discussed in chronological order. These data were then followed by the analyses and interpretations of teaching concerns, self-reflections, and practice.

I developed three tables for each case study regarding the following: TCQ results of pre-assessment, post-assessment, and change scores; self-reflection levels during the seminar, round one, round two, and round three; and teaching practices as noted by the GTA, the GTA’s students, and me over the course of the three
rounds. These tables helped me perform my analysis of teaching concerns, self-reflections, and teaching practices over the course of the semester for my study.

The purposes of individual case studies were to: describe the richness of attributes of each individual GTA; investigate his/her self, task, and impact concerns; evaluate his/her level of self-reflection over the course of the study; record observations of his/her teaching practice; and determine if there are any changes for him/her over time.

**Within-group case studies and comparisons.** Results for each of the participants were organized by group and placed into four separate tables using the information from the BIS. The data included in this table were: pseudo name, gender, age group, nationality, ethnicity (if U.S. citizen), academic unit, degree program, prior experience, and type of experience. These collected data provided pre-seminar baseline information for each individual participant so that they may be compared based on their pre-existing attributes. The similarities and differences among individuals within a group were discussed in detail with references to the BIS data table.

Concerns data was processed both in narrative and table forms. The GTA’s concerns were investigated by gleaning statements from reflective journals and the questions on both TCQs and then discussed in narrative. Results from the reflection journals and the TCQ were displayed by individual and arranged by groups into a table according to Fuller’s stages (self, task, impact). The table displays the
predominant stage for each of the six points of time when data were collected: during the seminar, prior to the study, during the three rounds of the study, and after the study concluded. The similarities and differences among individuals within a group were discussed in detail with references to the corresponding table.

The bolded reflection levels from each of the time periods (the seminar, and rounds one, two, and three) were recorded into another table with all of the members of the group. The levels were compared across individuals within this same group. The consistencies and inconsistencies of reflection levels among group members were noted and discussed with references to the across-group-individuals reflection level table.

Finally, the participants were placed in a table with respect to professional development sequence group membership. Those participants who were observed to have changed teaching practices were marked with an X followed by a description of the change. These changes also are discussed in prose with relation to the professional development sequence and possible explanations for change.

When there are commonalities in the results of individuals within a group, these commonalities justify looking into between-group comparisons. However, there were too many inconsistencies within the groups of my study to justify any between-group comparisons and, hence, no such analysis was performed.
Chapter 4

Results

Introduction

This chapter is organized into five sections. The first section contains the case studies of individual participants, organized by group with respect to the first three research questions. The second section is a within-group analysis followed by a synthesis of outcomes regarding my fourth research question. The third section is an interpretation of additional study outcomes in terms of Background Information Survey (BIS) data. The fourth section is an interpretation of additional study outcomes in terms of participants’ feedback on the professional development sequence they received. The fifth and final section is an interpretation of additional study outcomes in terms of the participants’ feedback on the GTA Seminar.

Case Studies of Participants

The following case studies are organized by group membership starting with the comparison group. Each group is described and then followed by the case studies of the participants who compose that group. The comparison group participants’ case studies begin with a description based on BIS data and end with a discussion on the results from the Teacher Concerns Questionnaire (TCQ). All of the other groups’ case studies contain the following information and data in temporal order:

- a summary of his/her characteristics as obtained through the BIS,
• an analysis of the aggregate of the three microteaching journals from the GTA Seminar,

• a description of his/her Fall 2012 classroom setting,

• their responses to the TCQ pre-assessment,

• a description of round one using information from the interviews (if coached) and observations the round one reflection journal analysis,

• a description of round two using information from the interviews (if coached) and observations the round two reflection journal analysis,

• a description of round three using information from the interviews (if coached) and observations the round three reflection journal analysis,

• his/her responses to the TCQ post-assessment,

• analysis of the collected information with respect to teaching concerns,

• analysis of the collected information with respect to self-reflections—using the Ward and McCotter (2004) rubric, and

• analysis of the collected information with respect to teaching practice

Comparison group member case studies. Members of the comparison group \((n = 4)\) were not involved in any professional development sequence. For data collection purposes, they responded to the TCQ before the beginning of the professional development sequences and after the conclusion of the professional development sequences. Thus, the resulting data collected from this group included
the Background Information Survey, three microteaching reflection journal entries, the pre- and post-TCQ responses and student evaluations.

**Mayukh.** Mayukh was a male from India in his early 20s who was working on his Master’s in Biomedical Engineering. English was his second language. He had no teaching experience of any kind before he attended the Fall 2012 GTA Seminar. He planned to work in research after obtaining his degree from Florida Tech. During the Fall 2012 semester, Mayukh taught Biomedical Engineering lab with Robert, who was in the video reflection group.

**Mayukh’s concerns.** According to the results of the TCQ pre-assessment at the start of the semester, Mayukh was extremely concerned about two self concerns: feeling adequate as a teacher and maintaining class control (Table 4.1, p. 117). He was very concerned about being accepted by professionals (self), getting a favorable teaching evaluation (self), lacking instructional materials (task), having too many non-instructional duties (task), having too many students each day (task), meeting the needs of different students (impact), and diagnosing learning problems (impact).

According to the results of the TCQ post-assessment at the end of the semester, Mayukh was very concerned feeling adequate as a teacher (self), getting a favorable teaching evaluation (self), being under too much pressure (task), meeting the needs of different students (impact), diagnosing learning problems (impact), and seeing that the student gets what he/she needs (impact).
When comparing the TCQ pre-assessment to the TCQ post-assessment, Mayukh increased in concern by two levels in being under too much pressure (task) and challenging unmotivated students (impact). He decreased in concern by two levels from pre-assessment to post-assessment in being accepted by professionals (self), maintaining class control (self), lacking instructional materials (task), having
too many students each day (task), and dealing with the routine and inflexibility of teaching (task).

**Lidia.** Lidia was a White female from the U.S. in her late 20s working on her Master’s in Biology. She was interested in being a teaching assistant because it would benefit her financially, aid in her achievement of career goals, and provide her a means to learn new skills. She had no TA experience prior to the GTA Seminar. However, Lidia had been an entry-level Biology lab assistant for a year at the University of Tampa. She intended to pursue a doctorate after graduation. During the Fall 2012 semester, Lidia was a TA for Biological Discovery 2 lab.

**Lidia’s concerns.** According to the results of the TCQ pre-assessment at the start of the semester, Lidia was very concerned about a self and a task concern, doing well in front of a superior and being under too much pressure (Table 4.2, p. 119). She was moderately concerned about dealing with the routine and inflexibility of teaching (task) and meeting needs for different students (impact). Lidia added,

I feel overwhelmed with managing TA responsibilities with my own responsibilities.

One thing that concerned me at the very beginning, I was not informed I would be having a handicap student in a wheelchair in my class. I teach a
### Table 4.2

*Lidia’s Responses to Self, Task, and Impact Items of the Pre- and Post-assessment Teacher Concerns Questionnaire*

<table>
<thead>
<tr>
<th>Self Concerns</th>
<th>Pre&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Post&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Diff&lt;sup&gt;c&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doing well in front of a superior</td>
<td>4</td>
<td>2</td>
<td>–2</td>
</tr>
<tr>
<td>Feeling adequate as a teacher</td>
<td>2</td>
<td>3</td>
<td>+1</td>
</tr>
<tr>
<td>Accepted by professionals</td>
<td>NR</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Getting a favorable teaching evaluation</td>
<td>2</td>
<td>4</td>
<td>+2</td>
</tr>
<tr>
<td>Maintaining class control</td>
<td>1</td>
<td>2</td>
<td>+1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Task Concerns</th>
<th>Pre&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Post&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Diff&lt;sup&gt;c&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of instructional materials</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Under too much pressure</td>
<td>4</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Too many non-instructional duties</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Too many students each day</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Routine and inflexibility of teaching</td>
<td>3</td>
<td>2</td>
<td>–1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Impact Concerns</th>
<th>Pre&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Post&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Diff&lt;sup&gt;c&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meeting needs for different students</td>
<td>3</td>
<td>4</td>
<td>+1</td>
</tr>
<tr>
<td>Diagnosing learning problems</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Challenging unmotivated students</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Guiding intellectual growth</td>
<td>1</td>
<td>2</td>
<td>+1</td>
</tr>
<tr>
<td>Student gets what he/she needs</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

<sup>Note. </sup><sup>a</sup>Pre = pre-assessment. <sup>b</sup>Post = post-assessment. <sup>c</sup>Diff = post-assessment score minus pre-assessment score. 1 = Not concerned, 2 = A little concerned, 3 = Moderately concerned, 4 = Very concerned, 5 = Extremely concerned, NR = No Response.

...lab where everything is laid out on lab benches that are too high for the student to reach.

According to the results of the TCQ post-assessment at the end of the semester, Lidia was very concerned about getting a favorable teaching evaluation (self), being under too much pressure (task), and meeting the needs for different students (impact). She was moderately concerned about feeling adequate as a
teacher (self) and being accepted by professionals (self). She decreased in concern by two levels from pre-assessment to post-assessment regarding doing well in front of a superior (self). She increased in concern by two levels from pre-assessment to post-assessment regarding getting a favorable teaching evaluation (self). Her response to what other concerns she had was, “Sometimes I’m concerned about spending too much time or effort with the TA position compared to my classes and research.”

**Matthew.** Matthew was a White male from the U.S. in his late 30s working on his doctorate in Computer Science. He was interested in a teaching assistant position because it would aid him in the achievement of career goals, allow for interaction with students, and give him the opportunity to share his interest in the content area. He had no TA experience prior to the GTA Seminar. However, he did teach a graduate level computing class for 1-2 semesters. He wanted to be a professor and researcher once he finished his degree. During the Fall 2012 semester, Matthew was a lab instructor for Introduction to Software Development with FORTRAN and a TA for Introduction to Software Engineering.

**Matthew’s concerns.** According to the results of the TCQ pre-assessment at the start of the semester, Matthew was extremely concerned about a self concern—feeling adequate as a teacher (Table 4.3, p. 121). He was very concerned about having too many non-instructional duties (task), meeting needs for different students (impact), guiding intellectual growth (impact), and making sure that each
Table 4.3

Matthew’s Responses to Self, Task, and Impact Items of the Pre- and Post-assessment Teacher Concerns Questionnaire

<table>
<thead>
<tr>
<th></th>
<th>Pre(^a)</th>
<th>Post(^b)</th>
<th>Diff(^c)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Self Concerns</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Doing well in front of a superior</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Feeling adequate as a teacher</td>
<td>5</td>
<td>3</td>
<td>–2</td>
</tr>
<tr>
<td>Accepted by professionals</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Getting a favorable teaching evaluation</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Maintaining class control</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td><strong>Task Concerns</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lack of instructional materials</td>
<td>2</td>
<td>1</td>
<td>–1</td>
</tr>
<tr>
<td>Under too much pressure</td>
<td>3</td>
<td>1</td>
<td>–2</td>
</tr>
<tr>
<td>Too many non-instructional duties</td>
<td>4</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Too many students each day</td>
<td>3</td>
<td>2</td>
<td>–1</td>
</tr>
<tr>
<td>Routine and inflexibility of teaching</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td><strong>Impact Concerns</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meeting needs for different students</td>
<td>4</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Diagnosing learning problems</td>
<td>3</td>
<td>1</td>
<td>–2</td>
</tr>
<tr>
<td>Challenging unmotivated students</td>
<td>3</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Guiding intellectual growth</td>
<td>4</td>
<td>3</td>
<td>–1</td>
</tr>
<tr>
<td>Student gets what he/she needs</td>
<td>4</td>
<td>4</td>
<td>0</td>
</tr>
</tbody>
</table>

Note. \(^a\)Pre = pre-assessment. \(^b\)Post = post-assessment. \(^c\)Diff = post-assessment score minus pre-assessment score. 1 = Not concerned, 2 = A little concerned, 3 = Moderately concerned, 4 = Very concerned, 5 = Extremely concerned.

student gets what he or she needs (impact). At the end of the questionnaire he added, “I think right now my biggest concern is ensuring that I can balance spending the time with the students that is needed to enable them to succeed with the time that I need to succeed in my studies.”

According to the results of the TCQ post-assessment at the end of the semester, Matthew was very concerned about having too many non-instructional
duties (task), meeting the needs for different students (impact), and making sure each student gets what he or she needs (impact). He decreased in concern two levels from pre-assessment to post-assessment in feeling adequate as a teacher (self), being under too much pressure (task), and diagnosing learning problems (impact). At the end of the questionnaire he added,

I have noticed that my concerns have changed from the beginning of the semester. Originally it was—will I be able to provide what the students need or be able to help them to achieve the learning objectives. Now I feel that it has changed from that to a challenge on how can I motivate or reach the students that are having a difficult time.

**Melissa.** Melissa was a White female from the U.S. in her early 20s working on her Master’s in Biology. She was interested in being a teaching assistant because it benefited her financially, her department promoted TA experiences, and it provided her a means to learn new skills. She had no teaching experience prior to the GTA Seminar. She intended to go into conservation research once she finished her degree. During the Fall 2012 semester, Melissa was a TA for Mammalian Physiology lab.

**Melissa’s concerns.** According to the results of the TCQ pre-assessment at the start of the semester, Melissa was very concerned about an impact concern—challenging unmotivated students (Table 4.4, p. 123). She was moderately concerned about feeling adequate as a teacher (self), being accepted by
Table 4.4

**Melissa’s Responses to Self, Task, and Impact Items of the Pre- and Post-assessment Teacher Concerns Questionnaire**

<table>
<thead>
<tr>
<th>Self Concerns</th>
<th>Pre&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Post&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Diff&lt;sup&gt;c&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doing well in front of a superior</td>
<td>2</td>
<td>1</td>
<td>–1</td>
</tr>
<tr>
<td>Feeling adequate as a teacher</td>
<td>3</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Accepted by professionals</td>
<td>3</td>
<td>2</td>
<td>–1</td>
</tr>
<tr>
<td>Getting a favorable teaching evaluation</td>
<td>2</td>
<td>3</td>
<td>+1</td>
</tr>
<tr>
<td>Maintaining class control</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Task Concerns</th>
<th>Pre&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Post&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Diff&lt;sup&gt;c&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of instructional materials</td>
<td>1</td>
<td>2</td>
<td>+1</td>
</tr>
<tr>
<td>Under too much pressure</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Too many non-instructional duties</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Too many students each day</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Routine and inflexibility of teaching</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Impact Concerns</th>
<th>Pre&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Post&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Diff&lt;sup&gt;c&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meeting needs for different students</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Diagnosing learning problems</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Challenging unmotivated students</td>
<td>4</td>
<td>3</td>
<td>–1</td>
</tr>
<tr>
<td>Guiding intellectual growth</td>
<td>2</td>
<td>3</td>
<td>+1</td>
</tr>
<tr>
<td>Student gets what he/she needs</td>
<td>3</td>
<td>2</td>
<td>–1</td>
</tr>
</tbody>
</table>

*Note.*<sup>a</sup> Pre = pre-assessment. *Post = post-assessment. *Diff = post-assessment score minus pre-assessment score. 1 = Not concerned, 2 = A little concerned, 3 = Moderately concerned, 4 = Very concerned, 5 = Extremely concerned.

professionals (self), and making sure each student gets what he or she needs (impact). When asked if she had other concerns on the TCQ Melissa responded,

> The reason I am not concerned about special needs students or students with learning disabilities is because I start the semester by telling my students that if they have any of those issues, or if any issues should arise, that they should talk to me in private or contact me via email.
If they do not come to me, then I assume they do not have an issue. At this age group I feel this is a fair assumption.

According to the results of the TCQ post-assessment at the end of the semester, Melissa was at most moderately concerned about feeling adequate as a teacher (self), getting a favorable teaching evaluation (self), challenging unmotivated students (impact), and guiding intellectual growth (impact). She decreased one level of concern from pre-assessment to post-assessment in doing well in front of a superior (self), being accepted by superiors (self), challenging unmotivated students (impact), and making sure that each student gets what he or she needs (impact). Melissa increased one level of concern from pre-assessment to post-assessment in getting a favorable teaching evaluation (self), lacking instructional materials (task), and guiding intellectual growth (impact).

**Coached reflection (CR) group member case studies.** I observed and interviewed members of the coached reflection group \((n = 4)\) three different times over the Fall 2012 semester (i.e., September/early October, late October, and early November). I held 20-minute interviews with these participants before and after I observed their classes. After the post-interview, participants in the CR group were asked to write in the reflection journal their reflections on their teaching during the time they were observed. The resulting data collected from this group included the Background Information Survey, three microteaching reflection journal entries,
pre- and post-TCQ responses, three TA observation forms, six interviews, three reflection journal entries, and student evaluations.

**Reese.** Reese was a White male from the U.S. in his early 20s working on his Master’s in Mechanical and Aerospace Engineering. He was interested in a teaching assistant position because it would benefit him financially, aid him in the achievement of career goals, and allow for interaction with students. He stated on the BIS that he had no teaching experience prior to the GTA Seminar; however, he later admitted to having taken an education class in his senior year of undergraduate school as well as having worked for many years as a camp counselor (personal communication, June 2, 2014). He planned to work as an engineer when he finished his degree.

**Microteaching journals analysis.** When I used the Ward and McCotter (2004) rubric to conduct a content analysis of the microteaching journal entries that Reese completed during the seminar, I found that he had self-related and task-related concerns (Table 4.5, p. 126). I determined that he reflected at a routine level when he focused on self-related concerns like the following: “I was nervous before teaching today, even if it was only for 10 minutes. The subject matter I decided to teach on is one I am comfortable with.” He had a technical level of self-reflection when he focused on several task-related concerns, which included:

I do not have too much concern getting in front of a class and presenting as long as I am prepared.
### Table 4.5

_Reese’s Progression of Reflection Levels_

<table>
<thead>
<tr>
<th>Routine Focus&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Technical Focus&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nervous; comfortable with subject matter; practice; confidence</td>
<td>Difficult to cover background information; preparation; wrote objectives on the board; difficult to keep up with time; timing of lesson; students learned because of answers to assessment; engaging students; holding students’ attention by involving them in lesson; understand what works with PowerPoint and what with white board</td>
</tr>
</tbody>
</table>

#### Round 1

<table>
<thead>
<tr>
<th>Routine Focus&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Technical Focus&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confident; enjoy teaching; plan to meet with other TAs to go over materials I’m unfamiliar with</td>
<td>Still trying to figure out how to handle all roles; walk around to each student and check their screens to see if they understand; homework grading also helps me know if students understand</td>
</tr>
</tbody>
</table>

#### Round 2

<table>
<thead>
<tr>
<th>Routine Focus&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Technical Focus&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Dialogic Focus&lt;sup&gt;c&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adapting to role as TA</td>
<td>Regret not getting students excited about design projects</td>
<td>Make room for students to meet me out of class to ask questions or get help</td>
</tr>
</tbody>
</table>

#### Round 3

<table>
<thead>
<tr>
<th>Routine Focus&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Technical Focus&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Technical Inquiry&lt;sup&gt;e&lt;/sup&gt;</th>
<th>Transformative focus&lt;sup&gt;f&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rewarding to teach students; enjoyed teaching; fulfilled TA responsibilities</td>
<td>Preparation; graded assignments quickly; reported good/bad events to professor; students applying material to produce good final projects</td>
<td>Most difficult to find time to meet students that need help because of conflicting schedules</td>
<td>Students all have good potential in the future; material they need to know later in their career as a student and engineer</td>
</tr>
</tbody>
</table>

*Note.*<sup>a</sup>Routine Focus = Focus is on self-centered concerns.<sup>b</sup>Technical Focus = Focus is on specific teaching tasks. <sup>c</sup>Dialogic Focus = Focus is on students in order to help them. <sup>d</sup>Dialogic Inquiry = Questions are asked with consideration of perspectives of students, peers, and others. <sup>e</sup>Technical Inquiry = Questions are implied by frustration, subject stops asking questions after initial problem is addressed. <sup>f</sup>Transformative Focus = Focus is on personal involvement with fundamental, pedagogical, ethical, moral, cultural, or historical concerns and how these impact students and others. See Ward and McCotter’s (2004) rubric for more detailed descriptions.
It was difficult to fit all appropriate background information into the lesson.

Having the objectives written on the board before my lesson was helpful too, and it is a great way to stay on topic.

A negative aspect of today was time length. I did run over the 10 minutes.

I feel like my ‘students’ learned because they were able to think through my assessment problems.

I was able to hold my students’ attention for the entire 10 minute lesson by involving them in the completion of each example problem.

**TCQ pre-assessment.** Before my study began, Reese’s highest level of concern recorded in the TCQ was very concerned, which he noted a task concern and two impact concerns: lacking instructional materials, meeting needs for different students, and seeing that students get what they need (Table 4.6, p. 128). He was moderately concerned about doing well in front of a superior (self), being accepted by professionals (self), maintaining class control (self), having too many non-instructional duties (task), and challenging unmotivated students (impact).

When asked about other concerns at the end of the questionnaire Reese replied,

I do not have many concerns when dealing with my class because it is for freshmen and I think I know almost all the material I am teaching. We also have a meeting at the end of each week to go over what happened, and what
Table 4.6

Reese’s Responses to Self, Task, and Impact Items of the Pre- and Post-assessment Teacher Concerns Questionnaire

<table>
<thead>
<tr>
<th>Self Concerns</th>
<th>Pre</th>
<th>Post</th>
<th>Diff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doing well in front of a superior</td>
<td>3</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Feeling adequate as a teacher</td>
<td>2</td>
<td>3</td>
<td>+1</td>
</tr>
<tr>
<td>Accepted by professionals</td>
<td>3</td>
<td>1</td>
<td>-2</td>
</tr>
<tr>
<td>Getting a favorable teaching evaluation</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Maintaining class control</td>
<td>3</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Task Concerns</th>
<th>Pre</th>
<th>Post</th>
<th>Diff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of instructional materials</td>
<td>4</td>
<td>1</td>
<td>-3</td>
</tr>
<tr>
<td>Under too much pressure</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Too many non-instructional duties</td>
<td>3</td>
<td>2</td>
<td>-1</td>
</tr>
<tr>
<td>Too many students each day</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Routine and inflexibility of teaching</td>
<td>2</td>
<td>1</td>
<td>-1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Impact Concerns</th>
<th>Pre</th>
<th>Post</th>
<th>Diff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meeting needs for different students</td>
<td>4</td>
<td>3</td>
<td>-1</td>
</tr>
<tr>
<td>Diagnosing learning problems</td>
<td>1</td>
<td>2</td>
<td>+1</td>
</tr>
<tr>
<td>Challenging unmotivated students</td>
<td>3</td>
<td>2</td>
<td>-1</td>
</tr>
<tr>
<td>Guiding intellectual growth</td>
<td>2</td>
<td>3</td>
<td>+1</td>
</tr>
<tr>
<td>Student gets what he/she needs</td>
<td>4</td>
<td>2</td>
<td>-2</td>
</tr>
</tbody>
</table>


we will be teaching next week. These meetings usually clarify every concern I have, except the normal concern I have of teaching in a way that the students will understand.

Setting. During the Fall 2012 semester, Reese was a TA for two consecutive 50-minute Introduction to Mechanical Engineering labs in the same classroom on Tuesday and Thursday mornings. I only observed the Thursday 9 a.m. class. The 9
a.m. class had 12 total students: nine U.S. males, three International males, and two U.S. females. Of the U.S. females, one was White and the other was unknown. Of the U.S. males, four were White, one was Black, and four were unknown. Reese’s main task during class time was to guide the students through their lab work and answer their questions when necessary.

His computer-lab classroom is one-half of two classrooms that are conjoined. However, during his class the larger room is divided by an accordion-style room divider that closes off access to the other half of the classroom. The front of the room has an instructor desk with computer that is linked to the projection system, which projects the computer images on a retractable projection screen behind the instructor desk. The two whiteboards in the room are behind the retractable screen in the front of the room and on the wall that faces the room divider. There are four sets of four clustered-together desks where the students sit facing each other. The Dell computers on the students’ and teacher’s desks are loaded with engineering software. The students tended to favor the front desks more than the ones in the back of the classroom; therefore, the front of the room is filled more than the back. The classroom entrance, which remains locked at all times, is in the back of the room next to the room divider. If students exited the room during class time, they had to knock to get back inside the room.
**Round one observations and interviews.** In an interview before I observed Reese for the first time, I asked him how things were going in his class. He told me the following:

Usually I help them with homework issues in the last 15 minutes of the class. I check the work of many of them [his students] and find that they were too confused to even start the work. I end up helping them in class because they had too much trouble on their own.

Then I observed Reese as he stood in the front of the classroom and instructed the lab. He kept watch of the students while he demonstrated the computer program to be sure the students were following along. He asked them to perform it themselves and walked around the room while the students worked on their computers to check that they knew how to use the program.

**Round one reflection journal analysis.** When conducting a content analysis of Reese’s first reflection journal, I found that he had self and task concerns (Table 4.5, p. 126). He had a routine level of self-reflection when he focused on how he enjoyed teaching, was confident, and needed to go over materials with other TAs as he stated in the following:

By now in the semester, I feel confident in my position as a TA.

I enjoy teaching, and I think that my students are doing a fine job understanding the material.
However, for this upcoming class on October eleventh, I will have to teach the students on material I am not familiar with. To get ready, I plan on meeting with the other TAs who I teach with and go over all the confusing parts.

He reflected at a technical level when he focused on a task concern, as evidenced by the following journal entries:

I am still figuring out how to handle everything (social, teaching, classes, research aspects), but luckily after this week I will have 2 weeks of easy teaching to catch-up in my classwork and research work.

I like to spend about 5-10 minutes teaching and then walk around to each student to either check their screens or answer questions. This way I can ensure that they have understood the material I taught since the last break where I walked around.

I can also see while grading homework that my students are understanding, for the most part.

Round two observations and interviews. I observed Reese giving a PowerPoint presentation loaded with information all the while demonstrating the new equipment to the students by showing it to them on the document camera. The students had trouble maintaining their attention to Reese’s PowerPoint
presentation, but Reese was very cognizant of this and made attempts to regain the students’ attention. Reese confirmed my observation, “I agree that there were tons of information on the presentation.” He was concerned about getting his students more excited about their design projects,

One of the other TAs showed some Youtube videos of some robots programmed by Arduino and he said they got really excited for the project...

Next time I have them meet together, I would like to give them the exciting view of this project.

**Round two reflection journal analysis.** When conducting a content analysis of Reese’s second reflection journal, I found that he had self-related and task-related concerns (Table 4.5, p. 126). Reese reflected at a routine level of reflection when he focused on self concerns—evidenced by these passages extracted from his journal:

I have further adapted to my role as a TA by opening up my schedule more to make room for students to meet me out of class to ask questions or get help on work. The beginning of this semester had work that was pretty simple, but now I am getting requests to give additional help. I don’t have any assigned office hours, so I view this as becoming more like a teacher. He had a technical level of self-reflection when he focused on motivating his students with his regret of not getting his students excited for the design project.
**Round three observations and interviews.** I observed Reese as he instructed the students to build parts. He would continually walk around class, check the students’ understanding, and help them one-on-one. Reese was aware of the students being distracted and would address them directly. He would tell them to look up front when he was explaining something to everyone in class. He was very clear in his directions and what the students should be looking for to verify their understanding—the part they were creating should turn gold. As I observed, Reese’s class ran smoothly. However, Reese felt otherwise, “It was kind of rough because there was no prep meeting on Friday for the TAs to go over what they were teaching.” Although he did not claim to have teaching experience on the Background Information Survey, he did mention prior teaching experience in an interview, “I’ve had some experience teaching in the past, and I feel that has helped me to a great extent with my instruction for his class.”

**Round three reflection journal analysis.** When conducting a content analysis of Reese’s third reflection journal, I found that he had self, task, and impact concerns (Table 4.5, p. 126). I found that he had a routine level of self-reflection and focused on three self-related concerns with these statements extracted from his journal:

> It has been rewarding to teach new students interested in mechanical engineering.
I enjoyed teaching my two sections.

I think I have fulfilled my responsibilities as a TA this semester.

He reflected at a technical level when he focused on the tasks related to his work as evidenced in the following passage extracted from his journal:

I can see most of my students learning the material and using the different programs I taught to produce a good final project for the class.

I led lab every Tuesday and Thursday this semester with a prepared lecture or other teaching strategy to aid my students in the materials my professor wanted me to teach. I graded assignments quickly, and gave reports to my professor whenever good or bad events happened in my class.

Reese reflected at a technical level when wrote in his journal an inquiry that defined his greatest challenge: “finding time to meet with my students that needed help.” He reflected at a transformative level when he mentioned the following impact concern in his journal:

It has been rewarding to teach new students interested in mechanical engineering a lot of the material they will need to know later in their career as a student and as an engineer. I enjoyed teaching my two sections, and I think they all have good potential in the future.
**TCQ post-assessment.** At the end of my study, Reese’s highest level of concern on the TCQ was moderately concerned (Table 4.6, p. 128), which he named three self concerns and two impact concerns: doing well in front of a superior (self), feeling adequate as a teacher (self), maintaining class control (self), meeting the needs for different students (impact), and guiding intellectual growth (impact). He was a little concerned with getting a favorable teaching evaluation (self), having too many non-instructional duties (task), diagnosing learning problems (impact), challenging unmotivated students (impact), and seeing that the students get what they need (impact). He was not concerned with any of the other items listed on the TCQ.

**Analysis and interpretation of Reese’s concerns.** According to the results of the TCQ pre-assessment (Table 4.6, p. 128), Reese was most concerned about one task concern (i.e., lacking instructional materials) and two impact concerns (i.e., meeting needs for different students and seeing that the student gets what he/she needs). According to the results of the TCQ post-assessment, he was most concerned about three self concerns (i.e., doing well in front of a superior, feeling adequate as a teacher, and maintaining class control) and two impact concerns (i.e., meeting needs for different students and guiding intellectual growth). Reese decreased in concern by three levels from pre-assessment to post-assessment in lacking instructional materials (task). He decreased in concern by two levels from pre-assessment to post-assessment in being accepted by professionals (self) and
seeing that each student gets what he or she needs (impact). He increased by one level of concern from pre-assessment to post-assessment in feeling adequate as a teacher (self), diagnosing learning problems (impact), and guiding intellectual growth (impact).

Reese never mentioned in his reflection journal entries any concern about lacking instructional materials, maintaining class control, or doing well in front of a superior as he did on the TCQ. Although his other concerns on the TCQ (i.e., seeing that each student gets what he or she needs, feeling adequate as a teacher, and guiding intellectual growth) were similar to his concerns in the reflection journals—meeting students out of class to help them, having confidence, and teaching students material they need to know later in their career. The discrepancies between Reese’s TCQ responses and reflection journal entries could be explained by a number of factors, including: rapid change of concerns between data collection points, misinterpretation of the TCQ, withholding of concerns from reflection journals, and instrument error.

Because he was a beginner with no prior teaching experience and had impact concerns during two rounds of my study, his case is not consistent with Fuller’s (1969) theory in which novices start at the lower stages.

Analysis and interpretation of Reese’s self-reflections. During the GTA Seminar, Reese reflected at routine and technical levels (Table 4.5, p. 126). Reese continued to reflect at routine and technical levels in round one of my study. For
the second round of my study, Reese reflected at routine, technical, and dialogic levels of focus. For the third and final round of my study, Reese reflected at routine, technical, and transformative levels of self-reflection. Reese had unusually high levels of self-reflection for a beginner GTA.

Analysis and interpretation of Reese’s practice. If I were to summarize the entirety of my observations and Reese’s feedback, I would describe Reese’s teaching practice as having a focal point of checking the understanding of his students (Table 4.7, p. 138). At any point in time during any class I observed him, Reese was closely observing the progress of his students and aware of their behavior in class. For instance, during all three rounds of my study I saw Reese give the students an objective to achieve and then watched him walk around the class and check that the students accomplished that objective. During the first and third observations, I saw Reese call on one of his students to regain that student’s wondering attention and refocus it on the subject at hand. I did not observe changes in Reese’s practice; however he was consistent in being very watchful and aware of the progress of his students.
Table 4.7

Reese’s Progression of Teaching Practice

<table>
<thead>
<tr>
<th>Source of Information</th>
<th>Round 1</th>
<th>Round 2</th>
<th>Round 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angela Delp</td>
<td>Observation form</td>
<td>Observation form</td>
<td>Observation form</td>
</tr>
<tr>
<td></td>
<td>Checked understanding of students by walking around to see students’</td>
<td>Demonstrated equipment on document camera; Asked students to perform</td>
<td>Provided agenda that outline class activities/assignments for the rest</td>
</tr>
<tr>
<td></td>
<td>performance; kept watch of students to make sure they were looking</td>
<td>actions on their computer and then checked their work; presentation</td>
<td>of the year; students asked to build and assemble parts; walked around</td>
</tr>
<tr>
<td></td>
<td>where they needed to look; students had to demonstrate their use of</td>
<td>was very loaded with information</td>
<td>checking students’ work; aware of students being distracted</td>
</tr>
<tr>
<td></td>
<td>program</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reese’s</td>
<td>Interview/Journal</td>
<td>Interview/Journal</td>
<td>Interview/Journal</td>
</tr>
<tr>
<td></td>
<td>Like to make sure students are keeping up with what is being taught</td>
<td>It is important to follow through and check the understanding of the</td>
<td>It was a good refresher on how to make parts but felt rushed</td>
</tr>
<tr>
<td>Reese’s students</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Midterm Evaluations</td>
<td>End-of-course Evaluations</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Not available</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Andrea. Andrea was a White female from the U.S. in her early 20s working on her Master’s in Biology. She was interested in being a teaching assistant because it would benefit her financially, she desired to learn new skills, and it looked good on her CV. She had no teaching experience prior to the GTA Seminar and was not sure what she would do after graduation.

Microteaching journals analysis. When I used the Ward and McCotter (2004) rubric to conduct a content analysis of the microteaching journal entries that
Andrea completed during the seminar, I found that she had self and task concerns (Table 4.8). Andrea reflected at a routine level as evidenced by the self concerns in her journals: “I definitely need to work on becoming more comfortable with public speaking—I still say ‘um’ a lot.” She had a technical level of self-reflection when she focused on some task concerns in her journals, which included: “Unfortunately, my presentation was much shorter than it should have been and lacked visuals. I do feel like my class paid attention to me during the entire presentation.”

<table>
<thead>
<tr>
<th>Table 4.8</th>
<th>Andrea’s Progression of Reflection Levels</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>During Seminar</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Routine Focus</strong></td>
<td>Need to work on being comfortable with public speaking; verbal pause um; time of lecture was too short; confidence improved; practice</td>
</tr>
<tr>
<td><strong>Technical Focus</strong></td>
<td>Lack visual aids; presentation too short; students paid attention</td>
</tr>
<tr>
<td><strong>Round 1</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Routine Focus</strong></td>
<td>Able to relate to students</td>
</tr>
<tr>
<td><strong>Technical Focus</strong></td>
<td>Evaluate students’ progress with weekly quizzes</td>
</tr>
<tr>
<td><strong>Round 2</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Routine Focus</strong></td>
<td>Comfort level with presentations</td>
</tr>
<tr>
<td><strong>Technical Focus</strong></td>
<td>Ask questions throughout lectures; understand where students are with quizzes; preparation</td>
</tr>
<tr>
<td><strong>Dialogic Inquiry</strong></td>
<td>Spending more time observing lead TA’s lab</td>
</tr>
<tr>
<td><strong>Round 3</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Routine Focus</strong></td>
<td>Rewarding to get to know and work with students; fulfilled TA responsibilities; improvements to public speaking</td>
</tr>
<tr>
<td><strong>Technical Focus</strong></td>
<td>Time management</td>
</tr>
<tr>
<td><strong>Technical Inquiry</strong></td>
<td>Challenging to get work for my classes done</td>
</tr>
</tbody>
</table>

*Note.* "Routine Focus = Focus is on self-centered concerns. Technical Focus = Focus is on specific teaching tasks. Dialogic Inquiry = Questions are asked with consideration of perspectives of students, peers, and others. Technical Inquiry = Questions are implied by frustration, subject stops asking questions after initial problem is addressed. See Ward and McCotter’s (2004) rubric for more detailed descriptions."
**TCQ pre-assessment.** According to the TCQ at the start of the semester, Andrea was concerned mostly with self concerns (Table 4.9). Her highest level of concern recorded in the TCQ was extremely concerned, which she noted a self concern—being accepted by professionals. She was very concerned about two self concerns, feeling adequate as a teacher and getting a favorable teaching evaluation.

<table>
<thead>
<tr>
<th>Self Concerns</th>
<th>Pre</th>
<th>Post</th>
<th>Diff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doing well in front of a superior</td>
<td>3</td>
<td>2</td>
<td>–1</td>
</tr>
<tr>
<td>Feeling adequate as a teacher</td>
<td>4</td>
<td>5</td>
<td>+1</td>
</tr>
<tr>
<td>Accepted by professionals</td>
<td>5</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Getting a favorable teaching evaluation</td>
<td>4</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Maintaining class control</td>
<td>2</td>
<td>1</td>
<td>–1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Task Concerns</th>
<th>Pre</th>
<th>Post</th>
<th>Diff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of instructional materials</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Under too much pressure</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Too many non-instructional duties</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Too many students each day</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Routine and inflexibility of teaching</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Impact Concerns</th>
<th>Pre</th>
<th>Post</th>
<th>Diff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meeting needs for different students</td>
<td>2</td>
<td>5</td>
<td>+3</td>
</tr>
<tr>
<td>Diagnosing learning problems</td>
<td>1</td>
<td>3</td>
<td>+2</td>
</tr>
<tr>
<td>Challenging unmotivated students</td>
<td>1</td>
<td>5</td>
<td>+4</td>
</tr>
<tr>
<td>Guiding intellectual growth</td>
<td>2</td>
<td>3</td>
<td>+1</td>
</tr>
<tr>
<td>Student gets what he/she needs</td>
<td>2</td>
<td>4</td>
<td>+2</td>
</tr>
</tbody>
</table>

*Note.* ^a^ Pre = pre-assessment. ^b^ Post = post-assessment. ^c^ Diff = post-assessment score minus pre-assessment score. 1 = Not concerned, 2 = A little concerned, 3 = Moderately concerned, 4 = Very concerned, 5 = Extremely concerned.
She was moderately concerned about a self concern, doing well in front of a superior. At the end of the TCQ she added, “I am also concerned about my students not taking initiative to study outside class.”

**Setting.** During the Fall 2012 semester, Andrea was a TA for two 4-hour Comparative Vertebrate Anatomy labs in the same classroom—one on Monday evening and one on Thursday morning. I only observed the Monday evening class. The Monday evening class had eight total students: one White U.S. male and seven U.S. females. Of the U.S. females, six were White and the other was unknown. Andrea’s main task during class time was to guide the students through their lab work and answer their questions when necessary.

The laboratory classroom Andrea worked in had a teacher’s lab table in the front of the room with a white board and retractable projection screen just behind it. Laboratory cabinets and equipment surrounded the classroom around three walls. Students were seated throughout the room in lab groups at their own lab tables. The students’ lab tables are equipped with water, gas, and electrical plugs. There were six lab tables for students; all were free-standing in the middle of the classroom. Each table was perpendicular to the teacher’s desk and set up to have four students. The classroom entrance was in the side of the room.

**Round one observations and interviews.** In an interview before I observed Andrea for the first time, I asked her how things were going in her class. She said,
One of my students skipped my class by oversleeping. He missed a quiz and would be heavily penalized for the incident if he didn’t make up for it. I offered him the opportunity to make up the work, but he didn’t take advantage of the opportunity.

In regards to her teaching Andrea admitted, “Presentations are not my strong points, but I’ve had positive feedback (verbally) from my students about my instruction.”

When I observed Andrea teach for the first time, I couldn’t help but notice that the PowerPoint presentation seemed to be a canned-presentation. For instance, the presentation seemed dry and she quickly read the information off of the slides. Additionally, the only engagement in class was when the students asked her questions of which she either answered, “You don’t need to know that” or “I’ll get back to you.” Finally, my biggest clue that it was a canned-presentation was when a student asked her a question and she didn’t know to tell him that the answer was on the next slide. Although she seemed vastly uncomfortable in front of the classroom, Andrea did extremely well walking around the classroom and talking to small groups of students.

When I asked Andrea how she felt about the class she responded, “I never feel I do well with presentations. I didn’t like the presentation I was given to present because I felt like it was repetitive. The presentation had been passed down to me and my partner TA from previous TAs.” I offered her a solution of changing
the presentation to fit her style. She responded, “I would, but I am concerned about changing anything because the quizzes are linked to the presentation and the other TA did the same presentation to keep the labs consistent.” I told Andrea that I thought there was some disconnect between her and the presentation she gave, and it gave me the impression that the presentation wasn’t important. She responded, “The presentation was important because it was connected to the quiz. Thank you for bringing this to my attention.” I then asked her if she read through the slides before delivering the presentation. She said, “I read through all of the slides beforehand and was still very nervous. I would like to change the PowerPoint presentations myself once I am the head TA.”

Round one reflection journal analysis. When conducting a content analysis of Andrea’s first reflection journal, I found that she had self-related and task-related concerns (Table 4.8, p. 139). Andrea reflected at a routine level as evidenced by the following statement extracted from her journal: “I think because I did struggle so much before [as a student], I am now able to relate to my students better.” She reflected on a technical level when she focused on a task-related concern in the following taken from her journal: “My students are given quizzes every week to test them on what they learned the week before. Based on their performance on these, I can evaluate their progress in the lab.”

Round two observations and interviews. I interviewed Andrea before she held class and she informed me, “I unfortunately received the PowerPoint
presentation 3 hours before I have to present it.” Although she did ask the students questions during the PowerPoint presentation, I noticed that she still read from the slides and was very nervous. I recommended that she print out the slides next time so that she would not read them from the screen. Before giving her my feedback, I asked Andrea how she felt about the class, and she responded, “I feel the presentation was smoother because PowerPoint was less crowded with information. It made me a little more comfortable to present it.”

Round two reflection journal analysis. When conducting a content analysis of Andrea’s second reflection journal, I found that she had self, task, and impact concerns (Table 4.8, p. 139). Andrea reflected at a routine level of reflection when she focused on the following self-related concerns extracted from her journal: “I’m also feeling much more comfortable with the presentations I give at the beginning of each lab.” She had a technical level of reflection when she focused on the following task-related concerns in her journal:

I now spend more time observing the lead TA’s lab. By walking around and answering his students’ questions, often with his help, I’m more prepared to help my own student doing the same lab.

With some help, I’ve found that by asking them [students] questions throughout the lecture, I can get them to think about and apply the material without just having to memorize it.
I know when my students are, or are not, understanding the material based on the weekly quizzes I give them.

Andrea reflected at a dialogic level when she wrote about her inquiries involving what questions her students’ might ask by attending the lead TA’s class and answering his students’ questions with his help.

*Round three observations and interviews.* I observed Andrea give her presentation with the help of slide notes. With the use of slide notes, Andrea tended to read less from the slides, face her audience more, and slow down her pace. Overall this change helped to make her seem less nervous. She also was able to engage her students by discussing the difference between arteries and veins. When I told her of my observations of how she had improved in her presentation skills, she replied,

I’m surprised, but happy that you thought my presentation was good. I found some benefit from looking at the printouts of the presentation as you had recommended. I did not have to look at the slides as much, could look at the audience more, and know what slide would be coming up.

*Round three reflection journal analysis.* When conducting a content analysis of Andrea’s third reflection journal, I found that she had self and task concerns (Table 4.8, p. 139). She had a routine level of self-reflection when she disclosed three self-related concerns in her journal as stated in the following:
The most rewarding experience I’ve had this semester by far has been getting to know and working with my students.

I think I’ve done pretty well fulfilling my TA responsibilities as a TA this semester.

This made me feel like I am making improvements to my public speaking, which I feel has been a weak point of mine throughout the semester. She reflected at a technical level when she focused on a new task-related concern as evidenced by the following extracted from her journal: “The greatest challenge I’ve faced this semester has actually just started coming up. Time management is becoming an issue for me.” She reflected at a technical level when she inquired to herself how to balance her different responsibilities as evidenced in these following statements from her journal: “I spend a lot of my time in the lab and grading, it’s becoming more challenging for me to get work for my classes and research done. I’m not in over my head yet, but it is something I need to pay more attention to.”

TCQ post-assessment. At the end of my study, Andrea’s highest level of concern on the TCQ was extremely concerned (Table 4.9, p. 140), which she named two self concerns and two impact concerns: feeling adequate as a teacher (self), accepted by professionals (self), meeting the needs for different students (impact), and challenging unmotivated students (impact). She was very concerned
with getting a favorable teaching evaluation (self) and seeing that the students get what they need (impact). Andrea was moderately concerned about diagnosing learning problems (impact) and guiding intellectual growth (impact). At the end of the post-assessment she added,

It would be nice if the TA Seminar included some information about when it is appropriate to discuss how a student is doing with the professor/student when the student is struggling.

Analysis and interpretation of Andrea’s concerns. According to the results of the TCQ pre-assessment, Andrea was most concerned about one self concern on the pre-assessment—being accepted by professionals (Table 4.9, p. 140). On the TCQ post-assessment, she was most concerned about two self concerns and two impact concerns—feeling adequate as a teacher (self), being accepted by professionals (self), meeting needs for different students (impact), and challenging unmotivated students (impact). Andrea increased in concern from pre-assessment to post-assessment for all of the impact concerns. The greatest change she had in concern from pre-assessment to post-assessment was when she increased by four levels regarding her concern in challenging unmotivated students (impact). She increased in concern by three levels from pre-assessment to post-assessment in meeting the needs of different students. Andrea increased in concern by two levels from pre-assessment to post-assessment in diagnosing learning problems (impact) and making sure students get what they need (impact). The only concerns she
decreased in from pre-assessment to post-assessment were doing well in front of a superior (self) and maintaining class control (self).

Andrea had self and task concerns throughout the three rounds of reflection journal entries. She had an impact concern in the second round of the study when she sought out help from another resource, the lead TA’s class, to help her teach more effectively. Her concern with confidence in her reflection journals agrees with her concerns about feeling adequate as a teacher on the TCQ. Her concern with a student who didn’t want to make up work in round one agrees with her concern of challenging unmotivated students on the TCQ. However, I could not find any concerns in the reflection journals that related to being accepted by professionals and meeting the needs of different students. This discrepancy could be explained by a number of possible factors including: misinterpretation of TCQ, withholding concerns from reflection journals, and lack of time for serious contemplation and sharing of concerns. When interpreting these findings in light of theory, Andrea’s reflection journal concerns and TCQ pre-assessment were somewhat consistent with Fuller’s (1969) theory.

*Analysis and interpretation of Andrea’s self-reflections.* During the GTA Seminar, Andrea reflected at routine and technical levels (Table 4.8, p.139). Andrea continued to reflect at routine and technical levels in the next three rounds of my study. Although, Andrea did reflect at a higher level, the dialogic level, in the second round. These results are consistent with theory because Andrea, as a
beginner, would normally reflect at these lower levels because she needs the proper scaffolding so that she can progress to the higher levels of self-reflection (Ward & McCotter, 2004).

Analysis of Andrea’s practice. Two things stood out in the information collected on Andrea’s practice: her weakness in public speaking and her desire to help students (Table 4.10, p. 150). Andrea’s students, Andrea, and I all discussed her obvious discomfort in giving PowerPoint presentations. Although Andrea herself did not feel her presentation skills had improved, a student mentioned that she improved on her midterm evaluations and I had noticed great improvement by round three. Regarding her desire to help students, a student mentioned how Andrea was respectful of student needs. I had noticed how she was readily available to the students and worked well with them one-on-one. Andrea felt that her empathy helped her identify with her students and prepare her more to assist them.
### Table 4.10

*Andrea’s Progression of Teaching Practice*

<table>
<thead>
<tr>
<th>Source of Information</th>
<th>Round 1</th>
<th>Round 2</th>
<th>Round 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Angela Delp</strong></td>
<td>Observation form</td>
<td>Observation form</td>
<td>Observation form</td>
</tr>
<tr>
<td></td>
<td>Didn’t know the slides; PowerPoint was canned; no student engagement during presentation except when they asked questions; response to student questions was “you don’t need to know that” or “I’ll get back to you;” talked fast; comfortable with one-on-one interactions</td>
<td>Still reading from slides; very nervous; asked questions of students during presentation;</td>
<td>Discussed difference between arteries and veins and why there’s a difference; better pace; looked more comfortable; didn’t read from slides</td>
</tr>
<tr>
<td><strong>Andrea</strong></td>
<td>Interview/Journal</td>
<td>Interview/Journal</td>
<td>Interview/Journal</td>
</tr>
<tr>
<td></td>
<td>Presentations are a weakness; read through all slides beforehand but still very nervous; empathic with students; if I don’t know an answer I look it up and get back to the students</td>
<td>Received Power Point 3 hours before presenting it; spend more time in lead TA’s lab and helps increase preparation</td>
<td>Practiced very much, but disappointed in performance; thought the lecture given was jumbled and very poor; public speaking is weak point</td>
</tr>
<tr>
<td><strong>Andrea’s students</strong></td>
<td>Midterm Evaluations</td>
<td>End-of-course Evaluations</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Always available and willing to help students; fair; public speaking skills have improved; fair grading; knowledgeable but timid to the point where she sounds unsure; nervous</td>
<td>Positive enthusiasm; needs more practice public speaking and identifying specimens; timid; respectful of student needs; encourage students to participate; needs to review material; will get back to us when doesn’t know answer</td>
<td></td>
</tr>
</tbody>
</table>
Sharad. Sharad was a male from India in his early 20s working on his Doctorate in Chemistry. He was interested in being a teaching assistant because of the financial benefits, his interest in the content area, and the interaction with students. Before Sharad attended the GTA Seminar he had tutored for 4-5 years one-on-one and in groups for ELearning in Chemistry. He would like to work in research and development for organic or medical Chemistry and preferred industry work over academia.

Microteaching journals analysis. When I used the Ward and McCotter (2004) rubric to conduct a content analysis of the microteaching journal entries that Sharad completed during the seminar, I found that he had self-related and task-related concerns throughout the microteaching journals (Table 4.11, p. 152). He reflected at a routine level when he focused on the following self-related concern in one of his journals: “I need to work on my speaking accent.” He had a technical level of reflection when he focused on some task-related concerns—as evidenced by the following statements taken from his journals:

I could meet the lesson objectives.

The students were engaged.

I lacked a ball and stick model to explain the content.
Table 4.11

Sharad’s Progression of Reflection Levels

<table>
<thead>
<tr>
<th></th>
<th>During Seminar</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Routine Focus</strong></td>
<td>Need to work on speaking accent</td>
</tr>
<tr>
<td><strong>Technical Focus</strong></td>
<td>Met lesson objectives; students engaged; lack of model to explain; students</td>
</tr>
<tr>
<td></td>
<td>answered my questions with confidence; used more visual aids, gave examples,</td>
</tr>
<tr>
<td></td>
<td>and got students involved</td>
</tr>
</tbody>
</table>

**Round 1**

| **Routine Focus**         | Doing well as a TA                                                            |
| **Technical Focus**       | Students understand instruction evidenced by labs and lab reports; students    |
|                           | interested in the relevance of experiment                                      |

**Round 2**

| **Technical Focus**       | Students are becoming more engaged and interested in rationale of doing an     |
|                           | experiment; students’ understanding reflected in experiment performance, data  |
|                           | sheet, and lab report;                                                       |
| **Dialogic Focus**        | Talk to struggling students personally to find out why they are struggling     |

**Round 3**

| **Routine Focus**         | Done fine as a TA; rewarding for me                                            |
| **Technical Focus**       | Managing responsibilities                                                      |

*Note. *Routine Focus = Focus is on self-centered concerns. *Technical Focus = Focus is on specific teaching tasks. *Dialogic Focus = Focus is on students in order to help them. See Ward and McCotter’s (2004) rubric for more detailed descriptions.

The lesson was an improvement as compared to my first lesson because I could provide more visuals, give as many examples as possible and get the students involved.

I felt the students learned since they could answer every question of mine with lots of confidence.
TCQ pre-assessment. At the start of the semester, Sharad’s highest level of concern recorded on the TCQ was extremely concerned (Table 4.12), which he noted two self concerns, one task concern, and four impact concerns—feeling adequate as a teacher (self), maintaining class control (self), lack of instructional materials (task), meeting the needs for different students (impact), diagnosing learning problems (impact), guiding intellectual growth (impact), and student gets

Table 4.12
Sharad’s Responses to Self, Task, and Impact Items of the Pre- and Post-assessment Teacher Concerns Questionnaire

<table>
<thead>
<tr>
<th>Self Concerns</th>
<th>Pre</th>
<th>Post</th>
<th>Diff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doing well in front of a superior</td>
<td>3</td>
<td>5</td>
<td>+2</td>
</tr>
<tr>
<td>Feeling adequate as a teacher</td>
<td>5</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Accepted by professionals</td>
<td>4</td>
<td>5</td>
<td>+1</td>
</tr>
<tr>
<td>Getting a favorable teaching evaluation</td>
<td>4</td>
<td>5</td>
<td>+1</td>
</tr>
<tr>
<td>Maintaining class control</td>
<td>5</td>
<td>4</td>
<td>−1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Task Concerns</td>
<td>Pre</td>
<td>Post</td>
<td>Diff</td>
</tr>
<tr>
<td>Lack of instructional materials</td>
<td>5</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Under too much pressure</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Too many non-instructional duties</td>
<td>2</td>
<td>4</td>
<td>+2</td>
</tr>
<tr>
<td>Too many students each day</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Routine and inflexibility of teaching</td>
<td>2</td>
<td>1</td>
<td>−1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impact Concerns</td>
<td>Pre</td>
<td>Post</td>
<td>Diff</td>
</tr>
<tr>
<td>Meeting needs for different students</td>
<td>5</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Diagnosing learning problems</td>
<td>5</td>
<td>4</td>
<td>−1</td>
</tr>
<tr>
<td>Challenging unmotivated students</td>
<td>4</td>
<td>5</td>
<td>+1</td>
</tr>
<tr>
<td>Guiding intellectual growth</td>
<td>5</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Student gets what he/she needs</td>
<td>5</td>
<td>5</td>
<td>0</td>
</tr>
</tbody>
</table>

what he/she needs (impact). The next highest level of concern Sharad had was very concerned about being accepted by professionals (self), getting a favorable teaching evaluation (self), and challenging unmotivated students (impact). He was moderately concerned about doing well in front of a superior (self).

Setting. During the Fall 2012 semester, Sharad was a TA for two 3-hour General Chemistry I labs in the same classroom—one on Thursday morning and the other on Friday afternoon. I only observed the Thursday morning class. The Thursday morning class had 18 total students: 13 U.S. males, five International males, and three U.S. females. Of the U.S. males, seven were White and the others were unknown. Of the U.S. females, one was Black, one was White, and one was unknown. Sharad’s main task during class time was to guide the students through their lab work and answer their questions when necessary.

The laboratory classroom Sharad worked in had a teacher’s lab table in the front of the room with a white board and retractable projection screen just behind it. Laboratory cabinets and equipment surrounded the classroom around three walls. Students were seated throughout the room in lab groups at their own lab tables. The students’ lab tables are equipped with water, gas, and electrical plugs. There were four lines of long lab tables for students; all were perpendicular to the teacher’s desk. The classroom entrance was in the front of the room.

Round one observations and interviews. In an interview before I observed Sharad for the first time, I asked him how things were going in his class. He said,
So far everything has been good. There are 26 students. The lab reports they turn in have been mostly good. What I focus on in grading their lab reports is the analysis of their results. This is how I can tell if they understand what they are supposed to from doing the lab.

I asked him if he had any problems and he responded,

A few students copied the lab manual because they didn’t know what to do, but they were able to correct their actions by resubmitting corrected papers. Most students are freshmen so they struggle to get used to writing lab reports. Most of them are getting 80 to 85% on their reports now, so they have shown improvement.

When I first observed Sharad, he gave a very enthusiastic presentation. He used the whiteboard to deliver his presentation. His boardwork was very clear, but somewhat disorganized. His students were not afraid to ask him questions. Sharad was patient as he waited for students to answer his questions and he allowed different students to answer his questions. Sharad dressed very professionally and spoke clearly despite English being his second language. Afterward I asked Sharad how everything went. He responded, “Very well. I created a review presentation just because I knew you were going to observe me teaching today.”

*Round one reflection journal analysis.* When conducting a content analysis of Sharad’s first reflection journal, I found that he had self and task concerns (Table 4.11, p. 152). He reflected at a routine level when he focused on a self concern as
evidenced by the following statement in his journal: “I am doing quite well as a TA.” He reflected on a technical level when he mentioned some task concerns in his journal in the following excerpts:

It is evident from the fact that the students understand my talks/presentation/instructions very well as reflected in the lab as well as in their lab report.

They [his students] are becoming more interested in understanding the relevance of the experiment rather than just following the procedure.

*Round two.* I interviewed Sharad before he held class and he informed me, I do not have any concerns for my teaching because of the aid my supervisor provides. He meets with the Chemistry TAs before each module to explain the labs and what to expect from students. I feel well-prepared as a TA going into the lab.

I then observed him give his presentation about the lab—throughout which he would ask his students questions. Sharad dressed very professionally and spoke clearly with a little stuttering. When I interviewed him afterward, I had difficulty because his mind was preoccupied on mishaps that were occurring in the lab with his research. I waited for one hour to speak with him. The only information he provided me was when he said, “I thought my instruction went fairly well—just
how well they understood it will depend on their lab work. They didn’t ask any questions throughout the lab so I assumed it went well.”

*Round two reflection journal analysis.* When conducting a content analysis of Sharad’s second reflection journal, I found that he had task and impact concerns (Table 4.11, p. 152). He reflected at a technical level when he focused on task concerns in the following excerpts:

Students are becoming more engaging by answering my questions and further discussing the topics. They are becoming more interested even in deducing the rationale of doing a particular experiment.

Students understand the subject matter quite well and it is reflected from the way they successfully perform the experiment without asking any questions. Their understanding of the subject is also reflected from their data sheet and lab report.

Sharad reflected at a dialogic level when he focused on impact concerns such as the following taken from his journal:

I personally talk to the students (to know the reasons/excuses) who do not do well on the prelab quiz or delay in submitting the lab report or when the lab report is not good enough. I have seen that my personal involvement into such things has uplifted their spirits to be sincere with respect to all the aforesaid things.
Round three observations and interviews. I observed Sharad give his PowerPoint presentation that was loaded with information. He was comfortable delivering the presentation as always. This time I noticed his students being foolish about how to dress for lab safety. There was a boy wearing flip-flops and a girl in the back of class who started lab with no shoes on. She eventually put her athletic shoes on 10-15 minutes into Sharad’s presentation.

After his class, I interviewed Sharad and asked him how his class went. “Everything went well—no problems occurred.” I told him about the two students that were lax about safety in the lab. He responded, I was aware of her need to change shoes before beginning the lab; however, I wasn’t fully aware that she was standing on the laboratory floor without shoes for a time. I cannot enforce what clothes the students wear to lab, so I choose my battles. For example, flip-flops are unacceptable, shorts are overlooked, and refusal to wear labcoat, apron, or goggles is not addressed after I have told them to wear them in the beginning of class.

Then I asked him who would take the blame if something bad happened in the lab. He responded, “I remember now that I caught the boy with flip-flops and sent him back to the dorm to put on the appropriate shoes.” I asked him if it was punishment or reward to send the student away. Sharad said, “It was a punishment and not a reward. He would still have to do the same work as everyone else even though he would lose what time he had to spend to get the correct shoes.”
Round three reflection journal analysis. When conducting a content analysis of Sharad’s third reflection journal, I found that he had a task concern and two self concerns (Table 4.11, p. 152). He had a routine level of self-reflection when he disclosed two self-related concerns in the following statements from his journal: “The performance of the students demonstrated that my instructions were delivered to them, that’s the most rewarding thing for me... I have done fine as a TA.” He had a technical level of self-reflection as evidenced by the following journal passage: “All these responsibilities can be performed quite well if managed wisely. I am still in the phase of managing those things.”

TCQ post-assessment. At the end of my study, Sharad’s highest level of concern on the TCQ was extremely concerned (Table 4.12, p. 153), which he named four self concerns, one task concern, and four impact concerns, doing well in front of a superior (self), feeling adequate as a teacher (self), accepted by professionals (self), getting a favorable teaching evaluation (self), lack of instructional materials (task), meeting the needs for different students (impact), challenging unmotivated students (impact), guiding intellectual growth (impact), and making sure the student gets what he/she needs (impact). He was very concerned with maintaining class control (self), having too many non-instructional duties (task), and diagnosing learning problems (impact). Sharad was a little concerned about being under too much pressure (task) and having too many
students each day (task). He wasn’t concerned about any of the other items listed on the TCQ.

**Analysis and interpretation of Sharad’s concerns.** According to the results of the TCQ pre-assessment (Table 4.12, p. 153), Sharad was most concerned about two self concerns (i.e., feeling adequate as a teacher and maintaining class control), one task concern (i.e., lack of instructional materials), and four impact concerns (i.e., meeting needs for different students, diagnosing learning problems, guiding intellectual growth, and seeing that the student gets what he/she needs). On the TCQ post-assessment, he was most concerned about four self concerns, one task concern, and four impact concerns—doing well in front of a superior (self), feeling adequate as a teacher (self), being accepted by professionals (self), meeting needs for different students (impact), challenging unmotivated students (impact), guiding intellectual growth (impact), and seeing that the student gets what he/she needs (impact).

Sharad increased in concern from the pre-assessment to the post-assessment by two levels in his concerns of doing well in front of a superior (self) and having too many non-instructional duties (task). He increased in concern from pre-assessment to post-assessment by one level in being accepted by professionals (self), getting a favorable teaching evaluation (self), and challenging unmotivated students (impact). The only concerns he decreased in were maintaining class
control (self), dealing with the routine and inflexibility of teaching (task), and diagnosing learning problems (impact).

Sharad had self and task concerns on the first round reflection journal entry. On round two he only had an impact concern and some task concerns. For the final round, Sharad only had a self concern and a task concern. This in no way supports his longer list of concerns from the TCQ. There are a number of factors that could contribute to this discrepancy including: misinterpretation of TCQ, withholding concerns from journals, and lack of time for serious contemplation and sharing of concerns.

If basing the concerns analysis strictly on reflection journals, Sharad’s concerns were somewhat consistent with Fuller’s (1969) theory because he mostly had self and task concerns. However, his TCQ results did not support this outcome so it is unclear as to whether Sharad would have higher-level concerns had he enough time to process and reflect on his teaching or if the TCQ was a misrepresentation of what was actually happening.

*Analysis and interpretation of Sharad’s self-reflections.* During the GTA Seminar, Sharad reflected at routine and technical levels (Table 4.11, p. 152). In the first round of my study, Sharad continued to reflect at routine and technical levels. In the second round, he reflected at a technical and dialogic level. In the third round, he reflected at a routine and technical level. These results are consistent with theory because Sharad, as a beginner, would reflect most often at these lower levels.
because he needs the proper scaffolding so that he can progress to the higher levels of self-reflection (Ward & McCotter, 2004).

Analysis and interpretation of Sharad’s practice. Sharad appeared to have very little problem with teaching—as evidenced by the feedback from myself, himself, and his students (Table 4.13). There was little change that occurred in his teaching practice—possibly because the lab was pre-organized by the supervisor.

Table 4.13
Sharad’s Progression of Teaching Practice

<table>
<thead>
<tr>
<th>Source of Information</th>
<th>Round 1</th>
<th>Round 2</th>
<th>Round 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angela Delp</td>
<td>Observation form: Called different students to answer his questions; he waited patiently for students to answer his questions; very enthusiastic for 8 a.m. class</td>
<td>Observation form: Students have choice of lab groups and roles; Sharad stopped through-out presentation and asked questions</td>
<td>Observation form: Some students are a bit foolish about how to dress for a Chemistry lab; PowerPoint is loaded with information</td>
</tr>
<tr>
<td>Sharad</td>
<td>Interview/Journal: Have quiet students and other students that always answer; do not have many students that respond to my questions</td>
<td>Interview/Journal: Feel well-prepared due to guidance of supervisor; personally talk to students who do not do well on prelab quiz</td>
<td>Interview/Journal: Not aware of a student dressed inappropriately; sent another student to dorm to change shoes</td>
</tr>
<tr>
<td>Sharad’s students</td>
<td>Midterm Evaluations: Not available</td>
<td>End-of-course Evaluations: Calm demeanor; funny and interactive; helping students understand and progress; hard to understand the accent; very patient; uncomfortable talking in front of class; fair; lacks punctuality; need more detail</td>
<td></td>
</tr>
</tbody>
</table>
Renee. Renee was a White female from the U.S. in her early 20s working on her Master’s in Chemical Oceanography. She was interested in being a teaching assistant because of the financial benefits, her desire to improve her CV, and the interaction with students. Prior to the GTA Seminar, she was a grader for a semester or two in college and a camp counselor for several years during the summers. She taught kids aged 7 to 18 about archery, sling-shots, and BB guns. She had no plans as to what she will do once she graduates. Renee desired to help me, but was reluctant to join my study unless she was guaranteed the $50 incentive. She was also apprehensive about the camera being in the way in the tight areas of the lab or being a distraction to the students. So, once I changed my incentive structure I contacted her about being in the coached reflection group and she accepted.

Microteaching journals analysis. Renee had self-related and task-related concerns throughout the microteaching journals (Table 4.14, p.164). Renee reflected at a routine level on self-related concerns as evidenced in the following statements taken from her journals:

I was comfortable with my lesson plan. I did feel a bit nervous about teaching at first.

I improved on being comfortable in front of the class, being enthusiastic, and having the words flow without as many ‘ums’ I still need to work on speaking without ‘likes and ‘ums’ in general, not just as a teacher.
Table 4.14
Renee’s Progression of Reflection Levels

<table>
<thead>
<tr>
<th></th>
<th>During Seminar</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Routine Focus</strong>&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Comfortable with lesson plan; feel nervous; enthusiasm; verbal pause “um” and</td>
</tr>
<tr>
<td></td>
<td>“like”</td>
</tr>
<tr>
<td><strong>Technical Focus</strong>&lt;sup&gt;b&lt;/sup&gt;</td>
<td>Students were engaged; be more organized with visual aids; pictures to illustrate</td>
</tr>
<tr>
<td></td>
<td>points; had students work in groups; need to ask questions throughout lesson;</td>
</tr>
<tr>
<td></td>
<td>preparation</td>
</tr>
<tr>
<td><strong>Technical Inquiry</strong>&lt;sup&gt;c&lt;/sup&gt;</td>
<td>Assumed students had background knowledge they didn’t have</td>
</tr>
<tr>
<td><strong>Technical Change</strong>&lt;sup&gt;d&lt;/sup&gt;</td>
<td>Slow down so students follow better and pay attention</td>
</tr>
</tbody>
</table>

**Round 1**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Routine Focus</strong>&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Same age as students; performance so far fine; able to adapt and learn quickly</td>
</tr>
<tr>
<td><strong>Technical Focus</strong>&lt;sup&gt;b&lt;/sup&gt;</td>
<td>Tough balancing teaching and taking classes; see what students are learning by discussion responses, quizzes, and labs</td>
</tr>
</tbody>
</table>

**Round 2**

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<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td><strong>Routine Focus</strong>&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Grown and adapted further; pushing myself; presenting subject matter</td>
</tr>
<tr>
<td><strong>Technical Focus</strong>&lt;sup&gt;b&lt;/sup&gt;</td>
<td>Students understand; addressing students’ questions; see what students know by quizzes, lab reports, and questions they ask</td>
</tr>
</tbody>
</table>

**Round 3**

<p>| | |</p>
<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Routine Focus</strong>&lt;sup&gt;a&lt;/sup&gt;</td>
<td>More comfortable with TA role; enthusiastic; doing well presenting subject matter; learned a lot about the subject and got to use new instruments; grading and prep for lab takes a long time; still scared of doing wrong—appearing foolish; fulfilled responsibilities fairly well; teaching requires patience and is a wearing task; will admit when I don’t know an answer; can figure out when questions are reasonable to ask</td>
</tr>
<tr>
<td><strong>Technical Focus</strong>&lt;sup&gt;b&lt;/sup&gt;</td>
<td>Students understand basics as evidenced by quizzes; students can answer questions asked; students understand expectations; students have improved in quizzes, attentiveness, focus, and writing; keeping track of grades; provide comments on work so they know how to improve; tough knowing what to do</td>
</tr>
<tr>
<td><strong>Technical Inquiry</strong>&lt;sup&gt;c&lt;/sup&gt;</td>
<td>Greatest challenge is balancing time between being a TA and being a student; quickly learning and then teaching</td>
</tr>
</tbody>
</table>

*Note. *<sup>a</sup>Routine Focus = Focus is on self-centered concerns. *<sup>b</sup>Technical Focus = Focus is on specific teaching tasks. *<sup>c</sup>Technical Inquiry = Questions are implied by frustration, subject stops asking questions after initial problem is addressed. See Ward and McCotter’s (2004) rubric for more detailed descriptions.
Renee reflected at a technical level when she focused on six task concerns, and this was evidenced in the following passages extracted from her journals:

I think the students were engaged.
I will probably try to plan and be more organized with my visual aids.
I used many more pictures to illustrate points, and had them work in groups to explain a concept.
Perhaps I should stop and ask more questions throughout the lesson to clarify these things.
I have realized that if I am well-prepared, I won’t feel nervous when I actually start talking.

She reflected at a technical level as she questioned the background of her students in the following journal statement: “I think there were certain points where I said things that they didn’t understand, because I was assuming they had background knowledge that they didn’t have.” She reflected at a technical level when she changed the way she taught and described the change in the following journal statement: “I narrowed the scope of my talk so that I could slow down and explain things in more detail for them to understand it better.”

TCQ pre-assessment. Renee’s highest level of concern recorded on the TCQ pre-assessment was extremely concerned, which she noted three self concerns—doing well in front of a superior, being accepted by professionals, and getting a
favorable teaching evaluation (Table 4.15). The next highest level of concern she had was moderately concerned about being under too much pressure (task) and making sure the student gets what he/she needs (impact). Renee was a little concerned about maintaining class control (self) and meeting needs for different students (impact). At the end of the TCQ Renee added,

Table 4.15

Renee’s Responses to Self, Task, and Impact Items of the Pre- and Post-assessment Teacher Concerns Questionnaire

<table>
<thead>
<tr>
<th>Self Concerns</th>
<th>Pre</th>
<th>Post</th>
<th>Diff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doing well in front of a superior</td>
<td>5</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Feeling adequate as a teacher</td>
<td>2</td>
<td>4</td>
<td>+2</td>
</tr>
<tr>
<td>Accepted by professionals</td>
<td>5</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Getting a favorable teaching evaluation</td>
<td>5</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Maintaining class control</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Task Concerns</th>
<th>Pre</th>
<th>Post</th>
<th>Diff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of instructional materials</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Under too much pressure</td>
<td>3</td>
<td>4</td>
<td>+1</td>
</tr>
<tr>
<td>Too many non-instructional duties</td>
<td>1</td>
<td>3</td>
<td>+2</td>
</tr>
<tr>
<td>Too many students each day</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Routine and inflexibility of teaching</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Impact Concerns</th>
<th>Pre</th>
<th>Post</th>
<th>Diff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meeting needs for different students</td>
<td>2</td>
<td>1</td>
<td>−1</td>
</tr>
<tr>
<td>Diagnosing learning problems</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Challenging unmotivated students</td>
<td>1</td>
<td>2</td>
<td>+1</td>
</tr>
<tr>
<td>Guiding intellectual growth</td>
<td>1</td>
<td>2</td>
<td>+1</td>
</tr>
<tr>
<td>Student gets what he/she needs</td>
<td>3</td>
<td>1</td>
<td>−2</td>
</tr>
</tbody>
</table>

My main concerns are that I am going to make a fool of myself in some way, because I have never learned any of this material that I’m teaching. I am TAing the undergrad version of a course, the grad version of which I am simultaneously taking. In addition, I come from the Northeast and have no experience with oceans, boats, and anything related to oceanography at all.

So a lot of my students know much more than I do about the kind of stuff I am teaching. My biggest concern of all is saying or doing something that will indicate to my professor that I don’t actually what is going on, or that I don’t know something that I should know. I was a Chemistry major as an undergrad, so I feel like I should definitely know and understand all the Chemistry stuff that we do. But most of the time I don’t, and I just pretend I do, and then I go back home and look it up and make sure I understand it afterward. So far everything has gone well and been working out. I don’t think I’ve said or done anything that would make my professor think that I’m stupid—but I’m constantly on edge with this and it is definitely the thing I think about most.

Setting. During the Fall 2012 semester, Renee was a TA for two 3-hour Marine and Environmental Chemistry labs—one on Wednesday morning and the other on Wednesday afternoon. I observed the Wednesday morning class for the first two observations and the afternoon class for the third observation. The Wednesday morning class had four total students: one U.S. male, two International males, and one U.S. female. The U.S. male and female were both White. The Wednesday afternoon class had seven total students: five U.S. males, one U.S.
female, and one International female. Of the U.S. males, four were White and one was multiracial. Her students were mostly juniors and seniors. Renee’s main task during class time was to guide the students through their lab work and answer their questions when necessary.

Renee taught in three separate environments when I observed her. The first time I observed her, she went out in the field on a pontoon boat to collect samples with her students in the Indian River Lagoon. The second time I observed her she was in a laboratory classroom that was the only functioning classroom in a building under construction. The lab had three conjoining rooms with instrumentation all throughout. The space was very limited as much of the space was taken by instrumentation and counter-space. The third time I observed Renee she held class in a conference room of the library. She reserved a room in the library because the laboratory classroom was too confined and cramped to hold a discussion.

*Round one observations and interviews.* In an interview before I observed Renee for the first time, I asked her how things were going in her class. She said,

I have had some issues balancing grading and my own responsibilities. For instance, I will be leaving Florida for Fall break, but have put off grading lab reports. Now I have to figure out how to do what is expected of me as a TA, but also enjoy my free time.
I asked her how she felt about teaching. She responded, “Teaching at this point has been a little frustrating because of the time demands. However, I do appreciate the financial aid. Also, I’m learning a lot.”

When I first observed Renee, she met her students at a boat dock with another graduate student who was there to drive the boat. Once the class was at a collection site, they took their samples using the different instruments. Renee had them rotate through each element of fieldwork. She worked closely with the students when they were collecting the samples so that the samples taken were consistent and free of cross-contamination. At the end of the fieldwork, Renee told her students that there were things they should prepare for in regards to the next class. She told them she would further inform them in a follow-up email.

Round one reflection journal analysis. When conducting a content analysis of Renee’s round one reflection journal, I found that she had self and task concerns (Table 4.14, p. 164). She reflected at a routine level when she focused on self concerns—as evidenced in the following passage taken from her journal:

I think my performance so far has been fine. I was definitely worried at first that the kids might not respect me because I am almost the same age as them. And I was also worried that I wouldn’t know the material well enough to teach it, or know how to do the experiments well enough to teach it, or know how to do the experiments well enough to show them. But it turns out I have been able to adapt and learn quickly, like I said above.
Renee reflected at a technical level of self-reflection as evidenced in her journal by the statements below:

I can see what my students are learning by their discussion responses and their quizzes and lab reports. It’s tough to balance teaching and taking classes. I feel like I need to be doing my own work, my own homework and projects yet at the same time, I feel obligated to do grading and prepping for my lab.

Round two observations and interviews. I observed her direct and oversee the analysis of the samples in the lab. The objective of the lab was to find the concentration of phosphate and silica in water samples. The lab was very organized—everything was labeled and placed in stations. Renee introduced the nutrients that were to be measured and how Beer’s law applied to the lab. She gave demonstrations of the handling of lab equipment. After the lab, she helped explain concentration analysis on Excel. Renee was thorough with the students and stressed their avoidance of cross-contamination by properly handling the cuvettes and pipettes to avoid unnecessary error. I shared my observations with Renee and she responded,

I’m glad to hear your feedback as I had a rough morning that day you observed me. I had prepared the lab the night before—all but a few chemicals. I didn’t understand the directions to prepare them. I didn’t sleep well that night and went to lab early the next day to finish up the chemicals.
I was a little disappointed that I had to ask my supervisor’s help in preparing the chemicals I was confused about. He mixed the chemicals for me without explaining what he did. I assumed there was a typo in the instructions.

I then asked her what her present concerns were. She responded,

I am still having trouble with time management. I have a Physical Oceanography test on Tuesday (my own coursework), a lab report due (my own coursework), and lab reports I need to grade and return to the students ASAP. I feel overwhelmed by all of these responsibilities—and not even ready to take my own test in 5 days. The lab reports I have to grade were assigned with general guidelines, but no specific rubrics. So I plan to grade them based off the best overall report. These are the first reports I will grade so they will be graded leniently as directed by my supervisor.

**Round two reflection journal analysis.** When conducting a content analysis of Renee’s second reflection journal, I found that she had self and task concerns (Table 4.14, p. 164). She reflected at a routine level as evidenced in the following passage of her focus on self-related concerns:

I have grown and adapted further in that I am now dealing with more stress, and am more busy. Thus, I am pushing myself harder to fulfill my role. But pushing yourself is how you become better. So I know that by doing this, I am developing patience, perseverance, and experience that will be useful in
the future. I think I need improvement in the area of presenting subject matter. I am only doing an adequate job. I should improve so that I am actually doing a good, even great job. But if I can get away with adequate and still get paid, I’ll stay with adequate—simply because of the time constraints.

Renee reflected at a technical level as evidenced by her focus on task-related concerns in the following passage extracted from her journal:

The students understand the material adequately as well. I think they understand it about as well as I do. There are some students who don’t seem to understand things at first, but when I specifically take time to address their questions (which I always do if they have any) they finally understand. I see what they know when I quiz them and when I grade their lab reports. Also, I can see what they know by the questions they ask. I have a bunch of stuff to grade this weekend. After I finish them, I think the students will know my expectations better.

*Round three observations and interviews.* I observed Renee conduct a discussion with her class in a library conference room. I was surprised that she wore shorts to class, but did not mention my surprise to her. She discussed lab handouts in a clear, organized way while using the chalkboard to illustrate her points and asking her students questions. They discussed the difference between
contamination and pollution, what instruments to use to detect contaminants, how
to determine natural levels of copper, and why there is a focus on copper.

At the end of class, I asked her what she thought of her performance. She responded,

I felt that the discussion today went well. I realize that I didn’t ask many
questions of the students, but that was the result of what I had been tasked
to do. I had asked more questions than my advisor, however. When he
asked questions, he often wouldn’t accept the answers the students gave
him or hear them out; he would answer the question himself. I watched him
give the discussion for my prior class in order to understand how to deliver
the discussion.

Round three reflection journal analysis. When conducting a content
analysis of Renee’s third reflection journal, I found that she had several self and
task concerns (Table 4.14, p. 164). She had a routine level of reflection as
evidenced by her self-related concerns in the following statements from her journal:

I think I am more comfortable with the role of TA now.

I think I am doing well at presenting the subject matter to my students.

I also make sure that I am enthusiastic about the labs when I conduct them
and when I talk about that, in order to make it more enjoyable for the kids.
I’m still scared of doing the wrong thing and making a fool of myself.
I have learned a lot about the subject and gotten to use new instruments that
I would not have gotten to use in the graduate level version.

I feel that I am fulfilling my responsibilities fairly well.

Having to grade and prep for lab takes a long time.

Actually having to teach the labs requires patience and is a wearing task.
Renee had a technical level of self-reflection as evidenced by her focus on several
task-related concerns in the following passages taken from her journal:

I think my students understand the basics well. I can see this from their quizzes and such.

My students understand my expectations well because I tell them what they need to do to improve. They have shown improvement in various ways, with their quizzes, attentiveness, focus, and writing. I also write comments on their work so they can see ways to improve.
I have perhaps taken on a bit more independence since I have been grading the students’ work, with no input from my supervisor, and keeping track of their grades on my own.

I will admit if I don’t know the answer to something, and I can figure out when my own questions are reasonable to ask.

Renee reflected at a technical level as she had questions implied by frustration in the following journal passages:

The greatest challenges I have faced this semester are trying to balance my time between being a TA and being a student.

Since I’ve never taken the class before, the hardest thing has been quickly learning the material, and then turning around and teaching it as if I know it so well. That is the hardest thing.

TCQ post-assessment. At the end of my study, Renee’s highest level of concern on the TCQ was extremely concerned, which she named three self concerns—doing well in front of a superior, being accepted by professionals, and getting a favorable teaching evaluation (Table 4.15, p. 166). Renee was very concerned about feeling adequate as a teacher (self) and being under too much pressure (task). She was moderately concerned about having too many non-
instructional duties. She was a little concerned about maintaining class control (self), challenging unmotivated students (impact), and guiding intellectual growth. She wasn’t concerned about any of the other items listed on the TCQ.

**Analysis and interpretation of Renee’s concerns.** According to the results of the TCQ pre-assessment (Table 4.15, p. 166), Renee was most concerned about three self concerns (i.e., doing well in front of a superior, being accepted by professionals, and getting a favorable teaching evaluation). On the post-assessment, she was still most concerned about the same three self concerns—doing well in front of a superior, being accepted by professionals, and getting a favorable teaching evaluation. Renee increased in concern from the pre-assessment to the post-assessment by two levels regarding feeling adequate as a teacher (self) and having too many non-instructional duties (task). She decreased in concern from the pre-assessment to the post-assessment by two levels in seeing that the student gets what he/she needs (impact).

According to the reflection journals, Renee had self and task concerns throughout the study. Her focus on self concerns was supported by her answers on the TCQ. I believe her self-related concerns stem back from her “quickly learning the material, and then turning around and teaching it as if I know it so well.” This made her extremely self-conscious and wary of how others judged her teaching. She confirmed this observation by stating in both her TCQ pre-assessment and third reflection journal, “My main concern is that I am going to make a fool of
myself in some way, because I have never learned any of this material that I’m teaching.”

Renee’s concerns in the TCQs and the reflection journals were somewhat consistent with Fuller’s (1969) theory.

There are two important considerations with regard to Renee as she differs from the other participants in two ways: she a TA for a class she had never taken and motivated by financial incentives. Her financial motivation is clearly demonstrated in her round one journal:

I feel like I NEED to be doing my own work, my own homework and projects... yet at the same time, I feel obligated to do grading and prepping for my lab. And I’m getting paid to do that, so it really is difficult to find a balance between the two.

She agreed to participate in my research solely for the incentive money as she states in the following: “I didn’t have any expectations of getting anything out of it [the study] to benefit my teaching or anything. All I really anticipated/wanted from it was to get the money at the end really.” Although she never missed an interview or inadequately completed a journal entry, Renee’s teaching for a class she’s never taken and her motive for money could have had intangible consequences to the outcomes of this study.

Analysis and interpretation of Renee’s self-reflections. During the GTA Seminar, Renee reflected at the routine level in focus and technical level in all
dimensions (i.e., focus, inquiry, and change). Renee continued to reflect at the routine and technical levels in her focus during the first round of my study (Table 4.14, p. 164). In the second round, she maintained these levels in the focus dimension. In the third round, she maintained the routine and technical levels of self-reflection in her focus. However, she also experienced inquiry at the technical level of self-reflection.

I did not rate Renee’s self-reflections at any higher level than routine or technical because there wasn’t any evidence that she sought out new insights or tried to reframe her perspective. These results are consistent with theory because Renee, as a beginner, would normally reflect at these lower levels because she needs the proper scaffolding so that she can progress to the higher levels of self-reflection (Ward & McCotter, 2004). However, it is important to consider the impact of her financial motivation and lack of familiarity with the subject she was teaching on the outcomes of her self-reflections.

Analysis and interpretation of Renee’s practice. Although I didn’t observe any changes, one thing stood out in the information collected from Renee and I on her practice—her drive to communicate clearly and effectively (Table 4.16, p. 179). In an interview, I told Renee that I noticed her telling her students information and promising to send the same information to them in an email. She told me she never wanted to leave a student confused about what to expect in class as this was what frustrated her as a student. During sample collection and analysis, Renee
Table 4.16

*Renee’s Progression of Teaching Practice*

<table>
<thead>
<tr>
<th>Source of Information</th>
<th>Round 1</th>
<th>Round 2</th>
<th>Round 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Angela Delp</strong></td>
<td>Observation form</td>
<td>Observation form</td>
<td>Observation form</td>
</tr>
<tr>
<td></td>
<td>Field work; students are collecting samples and performing measurements; hands-on; students rotated through each element of field work; Renee worked alongside students stressing consistency; sends follow-up emails</td>
<td>Lab analysis; very organized-everything was labeled; explained Beer’s law; demonstrated equipment and handling of samples; explained concentration analysis on Excel; stressed avoidance of cross-contamination and proper handling of equipment to avoid error</td>
<td>Discuss data and give lab report instructions; discussed handouts in clear, organized way; clear board work; questioned students; responded effectively to students’ questions</td>
</tr>
<tr>
<td><strong>Renee</strong></td>
<td>Interview/Journal</td>
<td>Interview/Journal</td>
<td>Interview/Journal</td>
</tr>
<tr>
<td></td>
<td>Conduct lab so that everyone gets experience with all the different data collecting aspects; email students so that they know what to expect and are never without a clue</td>
<td>Need improvement in the area of presenting subject matter—only doing an adequate job;</td>
<td>Discussion today went well; didn’t ask many questions of students; was able to present information in an understandable way; enthusiastic</td>
</tr>
<tr>
<td><strong>Renee’s students</strong></td>
<td>Midterm Evaluations</td>
<td>End-of-course Evaluations</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Not available</td>
<td>Not available</td>
<td></td>
</tr>
</tbody>
</table>

communicated the importance of consistency and proper handling to make clear the proper method of doing the work. Finally, during the discussion Renee communicated the materials in such an understandable way that I, as an outsider, was able to understand.
**Video reflection (VR) group member case studies.** Members of the video reflection group \( n = 4 \) were observed and filmed by me at three different times over the Fall 2012 semester (i.e., September/early October, late October, and early November). To keep this group a non-coached group, I had no interaction with these participants other than to provide directions and arrange the next observation. Once each observation was finished, a DVD of the class was burned and provided to the participant. I instructed the participants to view, at a minimum, 15 minutes of their instruction on the video and then write in the reflection journal their reflections on what they had viewed or learned from watching the video. The resulting data collected from this group included the Background Information Survey, three microteaching reflection journal entries, pre- and post-TCQ responses, three TA observation forms, three video recordings, three reflection journal entries, and student evaluations.

**Yashraj.** Yashraj was a male in his early 20s from India working on his Master’s in Mechanical and Aerospace Engineering. English was his second language. He was interested in a teaching assistant position so that he could obtain financial benefits, interact with students, and learn new skills. He had no teaching experience prior to the GTA Seminar and planned to continue to a PhD program once he has finished his degree at Florida Tech.

**Microteaching journals analysis.** Yashraj had self-related and task-related concerns throughout his microteaching journals (Table 4.17, p. 181). Yashraj self-
reflected at a routine level as evidenced by the self-related concerns in the following statements of his journals:

I was very comfortable with the content and implementing the teaching methodology learnt in the seminar.

I did feel very confident I do feel very comfortable with my body language, speech, and visual aids.
Yashraj reflected at a technical level by focusing on task-related concerns in the following excerpts of his journals:

I had prepared very well.

The students were highly enthusiastic and I provided a lot of opportunities and continuously involved them in the lesson and during illustrations. I would reteach the lesson the same way as I believe it was good and the students loved it.

All the notes and the illustrations explained with the diagrams helped all the visual learners and also provided material for everyone. I made everything clear and explained it loud and clear in an interesting way for auditory learners.

I might need more experience on time tracking while teaching.

The evidence was their [his students’] performance in the worksheet I handed out. All of them were very comfortable answering the questions and also participated well to the questions during class.

I made sure each student was in the same page by involving their participation as I thought by teaching through questions where ever possible and letting them come out with the answers.

*TCQ pre-assessment.* Yashraj’s highest level of concern recorded on the TCQ pre-assessment was very concerned (Table 4.18, p. 183), which he noted two
Table 4.18

Yashraj’s Responses to Self, Task, and Impact Items of the Pre- and Post-assessment Teacher Concerns Questionnaire

<table>
<thead>
<tr>
<th>Self Concerns</th>
<th>Pre(^a)</th>
<th>Post(^b)</th>
<th>Diff(^c)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doing well in front of a superior</td>
<td>3</td>
<td>2</td>
<td>−1</td>
</tr>
<tr>
<td>Feeling adequate as a teacher</td>
<td>4</td>
<td>2</td>
<td>+2</td>
</tr>
<tr>
<td>Accepted by professionals</td>
<td>2</td>
<td>4</td>
<td>+1</td>
</tr>
<tr>
<td>Getting a favorable teaching evaluation</td>
<td>4</td>
<td>3</td>
<td>−1</td>
</tr>
<tr>
<td>Maintaining class control</td>
<td>4</td>
<td>3</td>
<td>−1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Task Concerns</th>
<th>Pre(^a)</th>
<th>Post(^b)</th>
<th>Diff(^c)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of instructional materials</td>
<td>3</td>
<td>1</td>
<td>−2</td>
</tr>
<tr>
<td>Under too much pressure</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Too many non-instructional duties</td>
<td>2</td>
<td>1</td>
<td>−1</td>
</tr>
<tr>
<td>Too many students each day</td>
<td>2</td>
<td>1</td>
<td>−1</td>
</tr>
<tr>
<td>Routine and inflexibility of teaching</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Impact Concerns</th>
<th>Pre(^a)</th>
<th>Post(^b)</th>
<th>Diff(^c)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meeting needs for different students</td>
<td>2</td>
<td>4</td>
<td>+2</td>
</tr>
<tr>
<td>Diagnosing learning problems</td>
<td>3</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Challenging unmotivated students</td>
<td>3</td>
<td>4</td>
<td>+1</td>
</tr>
<tr>
<td>Guiding intellectual growth</td>
<td>4</td>
<td>3</td>
<td>−1</td>
</tr>
<tr>
<td>Student gets what he/she needs</td>
<td>4</td>
<td>4</td>
<td>0</td>
</tr>
</tbody>
</table>

Note.  
\(^a\)Pre = pre-assessment. \(^b\)Post = post-assessment. \(^c\)Diff = post-assessment score minus pre-assessment score. 1 = Not concerned, 2 = A little concerned, 3 = Moderately concerned, 4 = Very concerned, 5 = Extremely concerned.

self concerns and two impact concerns—getting a favorable teaching evaluation (self), maintaining class control (self), guiding intellectual growth (impact), and seeing that the student gets what he/she needs (impact). The next highest level of concern he had was moderately concerned about doing well in front of a superior (self), feeling adequate as a teacher (self), lacking instructional students (task), diagnosing learning problems (impact), and guiding intellectual growth (impact).
Yashraj was a little concerned about being accepted by professionals (self), having too many non-instructional duties (task), having too many students each day (task), dealing with the routine and inflexibility of teaching (task), and meeting the needs for different students (impact).

Setting. Yashraj was a Teaching Assistant for the General Engineering lab. He had two 2-hour sections of the class, which was a freshman-level class so there were many students who are undecided in their majors. The class I observed, his Thursday afternoon class, totaled eight people. There were seven U.S. males and one International male. Four of the U.S. males were White, two were Hispanic, and one was Black. Yashraj’s main task during class time was to give lectures on new materials and guide the students through their application activities on the computers.

His computer-lab classroom is one-half of two classrooms that are conjoined. However, during his class the larger room is divided by an accordion-style room divider that closes off access to the other half of the classroom. The front of the room has an instructor desk with computer that is linked to the projection system, which projects the computer images on a retractable projection screen behind the instructor desk. The two whiteboards in the room are behind the retractable screen in the front of the room and on the wall that faces the room divider. There are four sets of four clustered-together desks where the students sit facing each other. The Dell computers on the students’ and teacher’s desks are
loaded with engineering software. The students tended to favor the front desks more than the ones in the back of the classroom; therefore, the room is filled more in the front. The classroom entrance, which remains locked at all times, is in the back of the room next to the room divider. If students exited the room during class time, they had to knock to get back inside the room.

**Round one observations.** When I first observed Yashraj, he was teaching his students how to get started on the Creo software program for engineers. Yashraj dressed very professionally and was very formal in how he held his class—starting class with an agenda full of objectives. Although English was his second language, he was very well spoken and easy to understand. As he was teaching he asked his students questions and had them follow along with him in using the Creo software. Afterwards, Yashraj had the students work by themselves on a class exercise.

**Round one reflection journal analysis.** When conducting a content analysis of Yashraj’s round one reflection journal, I found that he had self and task concerns (Table 4.17, p. 181). He reflected at a routine level in the following statement from his journal regarding a self concern: “I believe I have adapted to my role and responsibilities as a TA so far.” Yashraj reflected at a technical level in the following excerpts of his journal regarding task-related concerns:

I still think I need to work more on getting the students to be more interested in class even during boring topics. There are multiple ways that I check on student understanding, starting from the class, where I constantly
question them to check their understanding and how they are keeping up to class teaching pace.

Well the first couple of weeks were pretty hard to get used to the various responsibilities and managing the time between them. Now I have been able to manage my time accordingly to cater to all my responsibilities.

*Round two observations.* I observed Yashraj teach the importance of what the students were learning in a PowerPoint presentation. During the course of his presentation he used hand gestures to help demonstrate the utility of ribs, chaffers, and filets. Yashraj asked a question about the meaning of the word helical, but answered the question himself before he accepted any responses. He also asked why ribs were important. His speech was clear although he would commonly state the verbal pause *um* when he was unsure of what to say next.

*Round two reflection journal analysis.* When conducting a content analysis of Yashraj’s second round reflection journal, I found that he had task concerns (Table 4.17, p. 181). He reflected at a technical level as evidenced by the following set of passages extracted from his journal:

Teaching the topic directly will not get students to see its importance or application. I always start my class by linking the topic of the day to industries and application which they are used in and how.
Students are understanding the subject taught to them quite well. This is being evaluated with the help of assignments and projects handed to them.

Initially grading a little harsh was the best way to get them to reach the expectation required for assignments and projects.

Yashraj reflected at a dialogic level as evidenced by the following passage extracted from his journal:

I have found that the major challenge was to teach and be effective and appealing to all types of learners. While teaching a General Engineering course with students interested in various disciplines, it is at times hard to get them focused on topics which might not be relevant to the topic of their interest. I have been constantly trying to improve trying to provide illustrations and application of all Engineering majors in a certain field.

Round three observations. On the third time I observed Yashraj’s classroom, he had to compromise how he taught his materials because his computer wasn’t working properly. Yashraj helped his students one-on-one to work around the problem he had with his computer. His students were following his directions closely and asking questions about the software as they had problems. Yashraj continually walked around the classroom answering his students’ questions.

Round three reflection journal analysis. When conducting a content analysis of Yashraj’s round three reflection journal, I found that he had a self
concern and some task concerns (Table 4.17, p. 181). Yashraj reflected at a routine level as evidenced by the following statement in his journal: “The most rewarding part as we progressed through the semester was my confidence in teaching.” He had a technical level of self-reflection when he disclosed the following information regarding task concerns in his journal:

I love to see how my students are able to apply what they learnt in class in their personal ideas which are not related to class. They are not scared of new tools (computational tools) but are rather curious to learn about them. Even though they do not apply to freshman studies they are very interested and are exploring these options and implementing them in their current projects.

TCQ post-assessment. At the end of my study, Yashraj’s highest level of concern on the TCQ was very concerned (Table 4.18, p. 183), which he named two self concerns and three impact concerns—feeling adequate as a teacher (self), being accepted by professionals (self), meeting needs for different students (impact), challenging unmotivated students (impact), and seeing that the student gets what he/she needs (impact). Yashraj was moderately concerned about getting a favorable teaching evaluation (self), maintaining class control (self), diagnosing learning problems (impact), and guiding intellectual growth (impact). He was a little concerned about doing well in front of a superior (self) and dealing with the
routine and inflexibility of teaching (task). He wasn’t concerned about any of the other items listed on the TCQ.

Analysis and interpretation of Yashraj’s concerns. According to the results of the TCQ pre-assessment (Table 4.18, p. 183), Yashraj was most concerned about two self concerns (i.e., getting a favorable teaching evaluation and maintaining class control) and two impact concerns (i.e., guiding intellectual growth and seeing that the student gets what he/she needs). On the post-assessment, he was most concerned about two other self concerns (i.e., feeling adequate as a teacher and being accepted by professionals) and three impact concerns (i.e., meeting needs for different students, challenging unmotivated students, and seeing that the student gets what he/she needs). When comparing the TCQ pre-assessment to the post-assessment, Yashraj increased in concern by two levels regarding being accepted by professionals (self) and meeting needs for different students (impact). He decreased in concern by two levels from pre-assessment to post-assessment in lacking instructional materials (task).

According to the reflection journals, Yashraj had self and task concerns during the seminar and the first round of my study, task and impact concerns during the second round, and then ended the third round with self and task concerns. His focus on self concerns in rounds one and three was supported by his self concerns on the TCQ pre-assessment and post-assessment. These self-related concerns of his could be related to his lack of teaching experience prior to the GTA Seminar.
In Yashraj’s round one journal, he was reflecting on how he was trying to work with individual class interests to provide better illustrations in their field of interest to capture attention. This self-reflection relates to his TCQ pre-assessment concern of maintaining class control (e.g., capture attention). In round two, his difficulty in getting his students interested in his course because of their varied disciplines and learning styles could be related to his concerns of meeting needs for different students (e.g., different because of their disciplines and learning styles) and challenging unmotivated students (e.g., unmotivated because of class materials they see as irrelevant to their discipline). However, his concern in guiding the intellectual growth on the TCQ pre-assessment wasn’t mentioned in any of his reflection journals.

Because Yashraj most often had lower-level concerns, his case is somewhat consistent with Fuller’s (1969) theory because he mostly had self and task concerns. However, his TCQ results did not completely support this outcome so it is unclear as to whether Yashraj would have higher-level concerns had more opportunities to process and reflect on his teaching or if the TCQ was a misrepresentation of what was actually happening.

*Analysis and interpretation of Yashraj’s self-reflections.* During the GTA Seminar, Yashraj reflected at routine and technical levels (Table 4.17, p. 181). Yashraj continued to reflect at routine and technical levels in the first round of my study. In the second round, he reflected at technical and dialogic levels. In the third
round, he reflected at routine and technical levels. These results are consistent with theory because Yashraj, as a beginner, would reflect at these lower levels because he needs the proper scaffolding so that he can progress to the higher levels of self-reflection (Ward & McCotter, 2004).

*Analysis and interpretation of Yashraj’s practice.* I could not discern any patterns in Yashraj’s practice (Table 4.19, p. 192). However, I did observe how he closely followed the progress of his students by walking around the classroom to observe each student’s work, having them follow along with him, helping them one-on-one, and performing demonstrations of the things that confused his students most.
### Table 4.19

**Yashraj’s Progression of Teaching Practice**

<table>
<thead>
<tr>
<th>Source of Information</th>
<th>Round 1</th>
<th>Round 2</th>
<th>Round 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angela Delp</td>
<td>Observation form: Asked some questions of</td>
<td>Observation form: Demonstrated why ribs are</td>
<td>Observation form: Helped students one-on-</td>
</tr>
<tr>
<td></td>
<td>students and had them work along with him</td>
<td>important; demonstrated chaffer and filet</td>
<td>one; called out students names to check that</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>they are following along; constantly walking</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>around answering questions</td>
</tr>
<tr>
<td>Yashraj</td>
<td><strong>Journal</strong>: Need to work more on getting</td>
<td><strong>Journal</strong>: Provide illustrations and</td>
<td><strong>Journal</strong>: No comments on practice</td>
</tr>
<tr>
<td></td>
<td>students more interested; provide</td>
<td>applications for all engineering majors;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>illustrations in their field of interest;</td>
<td>explain the importance of each tool taught;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>constantly question students; class</td>
<td>start class by linking the topic of the day</td>
<td></td>
</tr>
<tr>
<td></td>
<td>assignment at end of class</td>
<td>to industries and applications</td>
<td></td>
</tr>
<tr>
<td>Yashraj’s students</td>
<td><strong>Midterm Evaluations</strong>: Not available</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>End-of-course Evaluations</strong>: Not available</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Catrina.** Catrina was a White female from the U.S. in her late 30s working on her Doctorate in Psychology. She was interested in a teaching assistant position because it looks good on her CV, her department promotes TA experiences, and she enjoys interacting with students. Prior to the Fall 2012 GTA Seminar, she worked as a TA at Florida Tech for two classes in the past, Occupational Behavior Management and Learning and Motivation. She had also been a co-instructor for
ABA Technologies (an online graduate-level professional development program offered through Florida Tech) for more than 6 semesters. Catrina admitted to having taken two teaching courses, College Teaching and Instructional Design, later on in one of her reflection journals during the study. She intended to seek out a position in academia once she graduates. Catrina joined my study because she empathized with my plight as a researcher needing participants.

Microteaching journals analysis. Catrina had self-related and task-related concerns throughout the microteaching journals (Table 4.20, p. 194). Catrina reflected at a routine level as evidenced by her self-related concerns extracted from her journals:

I didn’t teach off of a PowerPoint, which is something that I’m used to having when I present or teach. So I felt a little off-kilter without one.

I felt pretty comfortable with today’s teaching, probably because the topic was in my area of specialization so I’m very familiar with the material. It’s a good reminder to practice before I present on a topic so that I can concentrate on other aspects of what’s going on.
Table 4.20
Catrina’s Progression of Reflection Levels

<table>
<thead>
<tr>
<th>During Seminar</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Routine Focus</strong></td>
</tr>
<tr>
<td><strong>Technical Focus</strong></td>
</tr>
<tr>
<td><strong>Round 1</strong></td>
</tr>
<tr>
<td><strong>Routine Focus</strong></td>
</tr>
<tr>
<td><strong>Technical Focus</strong></td>
</tr>
<tr>
<td><strong>Dialogic Focus</strong></td>
</tr>
<tr>
<td><strong>Technical Inquiry</strong></td>
</tr>
<tr>
<td><strong>Technical Change</strong></td>
</tr>
<tr>
<td><strong>Round 2</strong></td>
</tr>
<tr>
<td><strong>Routine Focus</strong></td>
</tr>
<tr>
<td><strong>Technical Focus</strong></td>
</tr>
<tr>
<td><strong>Round 3</strong></td>
</tr>
<tr>
<td><strong>Routine Focus</strong></td>
</tr>
<tr>
<td><strong>Dialogic Inquiry</strong></td>
</tr>
</tbody>
</table>

Note. Routine Focus = Focus is on self-centered concerns. Technical Focus = Focus is on specific teaching tasks. Dialogic Focus = Focus is on students in order to help them. Technical Inquiry = Questions are implied by frustration, subject stops asking questions after initial problem is addressed. Technical Change = Personally responds to situation, but does not use the situation to change perspective. Dialogic Inquiry = Questions are asked with consideration of perspectives of students, peers, and others. See Ward and McCotter’s (2004) rubric for more detailed descriptions.

Catrina reflected at a technical level as evidenced by the following set of passages extracted from her journals regarding task concerns:

I had difficulty judging how much material I could cover in 10 minutes. I was able to fit in all within 10 minutes, but I didn’t get to do the in-class exercises I planned. I would have liked to have incorporated more active
student responding. If I got to teach this lesson again, I would trim my objectives to contain less material and do more exercises. I would also prepare a PowerPoint presentation so that I could teach from my comfort zone.

The students were very interested in my topic today and asked a lot of good questions that took us slightly away from my objectives. However, the questions were pertinent to what I was talking about so I went with it. Unfortunately, that caused me to go a little over time. I do think that the students learned the material and were able to apply it by the end, which made me very happy.

TCQ pre-assessment. At the start of the semester, Catrina’s highest level of concern recorded on the TCQ pre-assessment was extremely concerned (Table 4.21, p. 196), which she chose a self concern—being accepted by professionals. The next highest level of concern she had was very concerned about getting a favorable teaching evaluation (self), lacking instructional materials (task), being under too much pressure (task), and challenging unmotivated students (impact). Catrina was moderately concerned about meeting the needs for different students (impact) and guiding intellectual growth (impact). She was a little concerned about maintaining class control (self), diagnosing learning problems (impact), and seeing that the student gets what he/she needs (impact). Catrina was not concerned about any of the other items listed on the TCQ.
### Table 4.21

*Catrina’s Responses to Self, Task, and Impact Items of the Pre- and Post-assessment Teacher Concerns Questionnaire*

<table>
<thead>
<tr>
<th>Self Concerns</th>
<th>Pre&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Post&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Diff&lt;sup&gt;c&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doing well in front of a superior</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Feeling adequate as a teacher</td>
<td>1</td>
<td>4</td>
<td>+3</td>
</tr>
<tr>
<td>Accepted by professionals</td>
<td>5</td>
<td>4</td>
<td>−1</td>
</tr>
<tr>
<td>Getting a favorable teaching evaluation</td>
<td>4</td>
<td>3</td>
<td>−1</td>
</tr>
<tr>
<td>Maintaining class control</td>
<td>2</td>
<td>1</td>
<td>−1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Task Concerns</th>
<th>Pre&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Post&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Diff&lt;sup&gt;c&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of instructional materials</td>
<td>4</td>
<td>1</td>
<td>−3</td>
</tr>
<tr>
<td>Under too much pressure</td>
<td>4</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Too many non-instructional duties</td>
<td>1</td>
<td>5</td>
<td>+4</td>
</tr>
<tr>
<td>Too many students each day</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Routine and inflexibility of teaching</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Impact Concerns</th>
<th>Pre&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Post&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Diff&lt;sup&gt;c&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meeting needs for different students</td>
<td>3</td>
<td>4</td>
<td>+1</td>
</tr>
<tr>
<td>Diagnosing learning problems</td>
<td>2</td>
<td>3</td>
<td>+1</td>
</tr>
<tr>
<td>Challenging unmotivated students</td>
<td>4</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Guiding intellectual growth</td>
<td>3</td>
<td>5</td>
<td>+2</td>
</tr>
<tr>
<td>Student gets what he/she needs</td>
<td>2</td>
<td>3</td>
<td>+1</td>
</tr>
</tbody>
</table>


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**Setting.** Catrina was a teaching assistant for Introduction to Psychology.

Unlike the majority of other TAs, Catrina had complete autonomy in her work. Catrina taught one class on Tuesday and Thursday afternoons from 3:30 to 4:45 p.m. I observed her class on Thursday afternoons. She had a total of 21 students: one International female, three U.S. females, 10 International males, and 11 U.S. males. Of the U.S. females, two were White and one was Black. Of the U.S. males,
six were White, one was Black, one was Asian, one was Hispanic, and two were multiracial. Catrina’s tasks were to design and give lectures; create, administer, and grade tests; and work through the material at a proper pace.

Catrina’s classroom could hold 51 students. The students sat throughout the classroom at rectangular tables that allowed room for three students facing the front of the room. There were three columns of desks going four to five rows back from the front of the classroom. The instructor was provided with a whiteboard, instructor workstation, projector, projection screen, and podium. Catrina used the podium and projection system on every occasion I observed her. The classroom entrances were located in the front of the room on either side of the whiteboard. One of these entrances is directly behind the instructor workstation.

Round one observations. When I first observed Catrina, she was teaching her students introductory material on Behavioral Psychology. Catrina instructed her class with great enthusiasm. She often used relatable experiences to explain her subject. For instance, she gave an example of adaptation as being similar to the students getting used to the sound of the buzzing lights to a point where they don’t hear them anymore. The class as a whole was very interactive. For instance, students were provided small white boards so that they could all answer her questions, which they did. Every student was participating in the questions she asked—without fear of being singled out as having the wrong answer.
**Round one reflection journal analysis.** When conducting a content analysis of Catrina’s round one reflection journal, I found that she had self, task, and impact concerns (Table 4.20, p. 194). She reflected at a routine level in the following excerpts of her journal regarding self concerns:

> I learned that I come off as a lot more bubbly than I realized, that I move around a lot and that I probably shouldn’t chew gum while I’m teaching.

I also realized that I sometimes stop what I’m saying mid-sentence and start a different topic.

Catrina reflected at a technical level of reflection in the following extraction from her journal regarding task-related concerns:

> In some lectures, though, it’s hard to identify kinesthetic type activities.

Also, it takes up a lot of class time to do those sorts of things, and I already have a lot of content to cover. I’m uncertain how much I should cover in class meetings and how much to let the students learn on their own from their readings.

Catrina reflected at a technical level as evidenced by the frustration in the following journal passage: “In previous classes, I noticed that most of the students weren’t taking notes.” She reflected at a technical level when she changed her methods as evidenced in following journal excerpt: “After seeing relatively poor performance on their tests, I decided to incorporate guided notes into my lecture.”
Finally, she reflected at a dialogic level when she focused on impact concerns in the following passages of her journal:

One thing I noticed was that there was less class discussion than there had been in previous classes, but I’m not sure if that’s due to the increased note-taking or to the topic itself. I like to see the class discussion because that lets me know that the students are engaged with the topic and making the material relevant to their own lives.

I like to use the white boards to test retention from previous classes and check to see if they understand the current material. That way, I can see right away if the students are getting it and adjust my teaching if they’re not. They did seem to be understanding the content of the Classical Conditioning lecture fairly well.

Round two observations. I observed Catrina finish up teaching the material that she had covered for the last class. During her lecture, the students were all engaged—discussing psychology topics. She had constant interaction with the students and was respectful and open to their questions. After Catrina finished, she had her students break up into teams so that they could play a game that would quiz them on their knowledge of what they had learned in her class. The students were very excited and enthusiastic about the game.
Round two reflection journal analysis. When conducting a content analysis of Catrina’s second round reflection journal, I found that she had self and task concerns (Table 4.20, p. 194). She reflected at a routine level as evidenced in the following journal passages regarding self-related concerns:

There are some chapters that I’m very uncomfortable teaching (specifically, the areas that are outside my area of expertise). On days when I have to present that kind of material, I don’t feel like I’m very prepared, no matter how much I’ve prepped ahead of time.

Nevertheless, I really enjoy interacting with my students. Catrina reflected at a technical level supported by the following excerpt from her journal regarding task-related concerns:

The hardest part about teaching isn’t what I see on the videos, so it’s not really that informative for me to watch them. The hardest part is in the prep – deciding what to cover, how to pace myself, how much depth to go into, what kind of questions to ask on tests, etc.

Round three observations. On the third time I observed Catrina’s classroom, she was enthusiastically teaching the lesson with constant discussions all throughout class with the students. Students all over the classroom were responding to the discussions and relating the material to everyday experience. Catrina was
very animated throughout class—making eye contact and speaking clearly without any nervous reactions (e.g., verbal pauses).

*Round three reflection journal analysis.* When conducting a content analysis of Catrina’s third reflection journal, I found that she had three self concerns and an impact concern (Table 4.20, p. 194). Catrina reflected at a routine level as evidenced by the following statements in her journal of a self-related nature:

> I am honestly relieved that this semester is almost over. This was too much work this semester. I taught 4 online classes, taught the Intro to Psych class, worked at the Scott Center heading up the curriculum development team and tried to get my dissertation research started up.

> I try to do everything with excellence and I know that I fell short, not just on this responsibility, but all responsibilities. I wish I could have put more time into this class. Instead I felt like I was constantly hurtling from one thing to another without spending enough time on anything.

The TA Seminar was great in a lot of ways, but I needed some Psychology-specific training. I needed to know things like what to expect performance on tests look like. How difficult should the questions be? How do I know whether to curve or throw out test questions and if I do, how do I determine what the curve should be? How do I talk to a student who plagiarized his paper? What chapters should I teach and which ones should I skip? How fast should I go? One chapter per class meeting or one chapter per week? If specific questions came up like that in the TA Seminar, we were told,
“don’t worry about it. That won’t be your decision; it will be the professor’s.” But I WAS the professor for my class and I didn’t know what to do.

Catrina reflected at a dialogic level as evidenced by the following excerpt extracted from her journal regarding her need to access resources to improve her impact:

I also regret agreeing to participate in this research project. I’m happy to serve as a participant in anyone’s study, but it was very frustrating to me that I couldn’t consult with any of the faculty on how to improve what I was doing. Sadly, I feel that the students suffered because of it. This is the first time I’ve taught a class completely on my own, where I was able to design the entire course myself, and I really could have used some help.

TCQ post-assessment. At the end of my study, Catrina’s highest level of concern on the TCQ was extremely concerned (Table 4.21, p. 196), which she named one task concern and one impact concern—having too many non-instructional duties (task) and guiding intellectual growth (impact). Catrina was very concerned about feeling adequate as a teacher (self), being accepted by professionals (self), being under too much pressure (task), meeting needs for different students (impact), and challenging unmotivated students (impact). Catrina was moderately concerned about getting a favorable teaching evaluation (self), diagnosing learning problems (impact), and seeing that the student gets what he/she
needs (impact). She was not concerned about any of the other items listed on the TCQ. At the end of the TCQ, Catrina added:

My main concern is the overall design of the class—how to select material to teach, how to pace the teaching, and how to deliver the instruction in an efficient way, but still meet the needs of the various learning styles that students come with.

*Analysis and interpretation of Catrina’s concerns.* According to the results of the TCQ pre-assessment (Table 4.21, p. 196), Catrina was most concerned about a self concern (i.e., being accepted by professionals). On the post-assessment, she was most concerned about a task concern (i.e., having too many non-instructional duties) and an impact concern (i.e., guiding intellectual growth). Catrina increased in concern from the pre-assessment to the post-assessment by four levels regarding having too many non-instructional duties (task). Catrina increased in concern from the pre-assessment to the post-assessment by three levels regarding feeling adequate as a teacher (self). She decreased in concern by three levels from pre-assessment to post-assessment in lacking instructional materials (task).

According to the reflection journals, Catrina had self and task concerns during the seminar; self, task, and impact concerns during the first round of my study; self and task concerns during the second round; and self and impact concerns during the third and final round of my study. Although most of the TCQ pre-assessment did not support her early reflection journal entries, the post-assessment...
supported her concerns mentioned in her round two and three journals. For instance, her two highest concerns on the TCQ post-assessment can be matched with statements she made in the round two and three journals. Having too many non-instructional duties on the TCQ post-assessment matched with her aggregated statements of the hardest part of teaching being the preparation in round two and her having too much work in the round three. Her extreme concern for guiding intellectual growth on the TCQ post-assessment matched with her statements about her students suffering due to her inability to seek outside resources in the round three journal.

The changes that occurred across her journals during the three rounds of the study were supported by the two largest increases in her concern from the TCQ pre-assessment to the TCQ post-assessment. In the round one journal she simply described what she saw in the video, shared her solution to a problem she had, and discussed her thoughts on learning styles in regards to her class. In the round two journal, Catrina’s tone changes to reflect her increasing troubles which include: her difficulty staying on top of all the class preparation, her discomfort in teaching certain chapters outside of her expertise, and her inquiries involving preparation. Finally in the round three journal, Catrina is admittedly spent and ready for the semester to be over due to her overwhelming responsibilities. These aforementioned changes in her journal entries are reflected in her 4-fold increase in
concern from the TCQ pre-assessment to the TCQ post-assessment in having too many non-instructional responsibilities.

Catrina’s increase of concern from pre-assessment to post-assessment in feeling adequate as a teacher seems to be strongly linked to her increase in concern in having too many non-instructional responsibilities. This linkage was evidenced in the following excerpt from her round three journal: “I try to do everything with excellence and I know that I fell short, not just on this responsibility, but on all of my responsibilities. I wish I could have put more time into this class.” Her increase in concern with having too many non-instructional duties was also evidenced as she made no statements in her round one or two journals in regards to having too many duties or lacking time, but in round three she was clear this was a problem.

Gradually building intensity from round to round in all three rounds of reflection journals, Catrina pointed out negative things about her teaching that could relate her concern with feeling adequate as a teacher. For example, in round one she merely felt she was too bubbly and moved around too much; in round two she felt she came across as unprepared and was uncomfortable teaching outside of her expertise; and in round three she felt that she had fell short of excellence and her students suffered because of it. Thus, Catrina’s increase in concern in feeling adequate as a teacher and having too many non-instructional duties is evidenced in both of the TCQs and the reflection journals.
Although many of her responses on the TCQ aligned with her reflection journals, I believe the outcome of Catrina’s case was extremely complex and difficult to interpret due to the uniqueness of her case. The following are important considerations with regard to Catrina:

- She felt overwhelmed by her variety of duties (e.g., wife, mother, online teacher, campus teacher, Scott Center curriculum team leader, researcher)
- She was unique amongst my participants in age and discipline
- She found the lack of consult with other professors detrimental to her teaching
- It was her first time to have complete autonomy as a teacher
- She had classes on college teaching in the past

Her statements in her round-three journal were clear that she found it frustrating that she could not consult with any of the faculty. She believed that her students suffered because of her involvement in my study, and she regretted her decision to participate. It was apparent that she was starting to lose focus on reflecting about her teaching when she shared that the videos were not informative for her in her round-two journal. She also did not make any of the observations I or her students made of her practice as evidenced in the following analysis of her practice.

As the outcome of the concerns analysis for Catrina stands, her case was inconsistent with Fuller’s (1969) theory.
Analysis and interpretation of Catrina’s self-reflections. During the GTA Seminar, Catrina reflected at routine and technical levels (Table 4.20, p. 194). Catrina continued to reflect at routine and technical levels in the first round of my study, but also reflected at a dialogic level. In the second round, she maintained her self-reflection at a routine and technical level. In the third round, she reflected at routine and dialogic levels. I could not find any discernible patterns in Catrina’s levels of reflection from the GTA Seminar to round three of my study. I believe there are several possible factors that contribute to this outcome of varied reflection levels throughout the study: Catrina’s regret in joining the study, her lack of time, her age, her TA and teaching experiences prior to the GTA Seminar, her lack of prior experience in having total autonomy as a TA, and her relating to me and my research with human subjects as she is a Psychology major. For example, her lack of time may have resulted in the lower levels of reflection in round two. As she was nearly finished with her work in round three this lack of time may not have applied to her reflection levels in that round. Her lack of prior experience in having total autonomy may have preoccupied her mind with those sorts of issues instead of allowing her to focus on her teaching.

Analysis and interpretation of Catrina’s practice. I could not find any patterns in Catrina’s practice (Table 4.22, p. 208). However, her students and I observed her being enthusiastic, interacting effectively with students, and
Table 4.22
Catrina’s Progression of Teaching Practice

<table>
<thead>
<tr>
<th>Source of Information</th>
<th>Round 1</th>
<th>Round 2</th>
<th>Round 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angela Delp</td>
<td>Observation form</td>
<td>Observation form</td>
<td>Observation form</td>
</tr>
<tr>
<td></td>
<td>Gave many examples; very</td>
<td>Engaged all students; open</td>
<td>Encourages class discussion;</td>
</tr>
<tr>
<td></td>
<td>interactive with students;</td>
<td>to questions from students;</td>
<td>very</td>
</tr>
<tr>
<td></td>
<td>very enthusiastic; constant</td>
<td>game used to increase</td>
<td>enthusiastic</td>
</tr>
<tr>
<td></td>
<td>questions of students</td>
<td>enthusiasm of students</td>
<td></td>
</tr>
<tr>
<td>Catrina</td>
<td>Journal</td>
<td>Journal</td>
<td>Journal</td>
</tr>
<tr>
<td></td>
<td>Very bubbly; moving around a</td>
<td>Feel unprepared; wasn’t</td>
<td>No comments on practice</td>
</tr>
<tr>
<td></td>
<td>lot; chewing gum; less class</td>
<td>on top of my game</td>
<td></td>
</tr>
<tr>
<td></td>
<td>discussion than previously;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>well organized;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Catrina’s students</td>
<td>Midterm Evaluations</td>
<td>End-of-course Evaluations</td>
<td></td>
</tr>
<tr>
<td></td>
<td>None</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>She scored highest on her</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>effective interaction with</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>students; enthusiasm;</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>encouragement of students to</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>participate and ask questions;</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>relevance of tests to subject</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>material; there were no</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>substantially low scores</td>
<td></td>
</tr>
</tbody>
</table>

encouraging students to participate and ask questions. Unfortunately, Catrina was very self-critical and did not make these observations for herself.

**Robert.** Robert was a White male from the U.S. in his early 20s working on his Master’s in Biomedical Engineering. He was interested in a teaching assistant position because it would aid him in the achievement of his career goals, provide him the means to share his interest in the content area, and benefit him financially.
He had no teaching experience prior to the GTA Seminar other than having tutored students in his junior and senior year of high school in math and physics. Robert was unsure of what he wants to do after graduation. He agreed to participate in my study because he empathized with my plight as a researcher needing participants.

Microteaching journal analysis. Robert had self-related and task-related concerns throughout the microteaching journals (Table 4.23, p. 210). Robert reflected at a routine level as evidenced by the self-related concerns extracted from his journals:

I wasn’t as comfortable turning my back to write so much, and I didn’t organize the white board items very well.

I gained confidence as I went, and I believe everyone could really see my enthusiasm for the subject.

For the next session, I plan to make a PowerPoint, so I don’t have to spend time writing (also I am not the neatest writer).

Everything went well.

I appreciated the feedback I got.
Table 4.23

Robert’s Progression of Reflection Levels

<table>
<thead>
<tr>
<th>Round</th>
<th>Routine Focus(^a)</th>
<th>Technical Focus(^b)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Need more practice with boardwork; confidence increasing; good enthusiasm; need to work on handwriting; time spent writing on board; performed well; appreciated feedback</td>
<td>Involved class in lesson often; prepared</td>
</tr>
<tr>
<td><strong>Round 1</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Picking up nuances of being a TA; TA skills improving</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Balancing workloads; when students are able to put information I’ve given them into real-world context I know they understand</td>
<td></td>
</tr>
<tr>
<td><strong>Round 2</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Need to speak up more and watch for distracted students</td>
<td>I select what is taught; tasks/assignments are clear; I make sure lessons are relevant; I give advice to students-suggesting research ideas, discussing class options, and talking about my experiences; lab report results tell me students understand</td>
</tr>
<tr>
<td><strong>Round 3</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>This experience is rewarding; done a fine job as a TA; dealt with problems in a fair and professional way</td>
<td>Finding time for all responsibilities is difficult</td>
</tr>
</tbody>
</table>

*Note. *\(^a\)Routine Focus = Focus is on self-centered concerns. *\(^b\)Technical Focus = Focus is on specific teaching tasks. See Ward and McCotter’s (2004) rubric for more detailed descriptions.*

Robert reflected at a technical level as evidenced by the following statements extracted from his journals regarding task concerns:

I involved the class a lot.

I feel quite prepared for the coming semester.

_TCQ pre-assessment._ At the start of the semester, Robert’s highest level of concern recorded on the TCQ pre-assessment was very concerned (Table 4.24, p. 211), which he had a self concern (i.e., maintaining class control) and two impact...
Table 4.24

Robert’s Responses to Self, Task, and Impact Items of the Pre- and Post-assessment Teacher Concerns Questionnaire

<table>
<thead>
<tr>
<th>Self Concerns</th>
<th>Pre&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Post&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Diff&lt;sup&gt;c&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doing well in front of a superior</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Feeling adequate as a teacher</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Accepted by professionals</td>
<td>3</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Getting a favorable teaching evaluation</td>
<td>3</td>
<td>2</td>
<td>–1</td>
</tr>
<tr>
<td>Maintaining class control</td>
<td>4</td>
<td>3</td>
<td>–1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Task Concerns</th>
<th>Pre&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Post&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Diff&lt;sup&gt;c&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of instructional materials</td>
<td>3</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Under too much pressure</td>
<td>1</td>
<td>2</td>
<td>+1</td>
</tr>
<tr>
<td>Too many non-instructional duties</td>
<td>3</td>
<td>2</td>
<td>–1</td>
</tr>
<tr>
<td>Too many students each day</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Routine and inflexibility of teaching</td>
<td>3</td>
<td>1</td>
<td>–2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Impact Concerns</th>
<th>Pre&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Post&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Diff&lt;sup&gt;c&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meeting needs for different students</td>
<td>3</td>
<td>2</td>
<td>–1</td>
</tr>
<tr>
<td>Diagnosing learning problems</td>
<td>3</td>
<td>2</td>
<td>–1</td>
</tr>
<tr>
<td>Challenging unmotivated students</td>
<td>1</td>
<td>3</td>
<td>+2</td>
</tr>
<tr>
<td>Guiding intellectual growth</td>
<td>4</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Student gets what he/she needs</td>
<td>4</td>
<td>4</td>
<td>0</td>
</tr>
</tbody>
</table>


concerns (i.e., guiding intellectual growth and seeing that the student gets what he/she needs). The next highest level of concern he had was moderately concerned about being accepted by professionals (self), getting a favorable teaching evaluation (self), lacking instructional materials (task), having too many non-instructional duties (task), meeting needs for different students (impact), and diagnosing learning problems (impact). Robert was a little concerned about doing
well in front of a superior (self) and feeling adequate as a teacher (self). He was not concerned about any of the other items listed on the TCQ.

Setting. Robert was a teaching assistant for two 2-hour Biomedical Engineering labs. Unlike the other TAs, Robert shared his teaching responsibilities with another TA, Mayukh, from the comparison group. Robert had two sections one at 9 a.m. and another at 12 p.m. on Fridays. I observed his 9 a.m. class for the first observation and his 12 p.m. class for the second and third observations. His 9 a.m. class had a total of 14 students: three U.S. females, one International male, and 10 U.S. males. Of the U.S. females, one was Black, one was Hispanic, and one was unknown. Of the U.S. males, three were White, two were Asian, two were Hispanic, one was native Hawaiian, and two were unknown. His 12 p.m. class had a total of 12 students: four U.S. females, four International females, one International male, and three U.S. males. All four of the U.S. females were White. Of the U.S. males, two were White and one was Hispanic. Robert’s main task during class time was to guide the students through their lab work and answer their questions when necessary.

Robert taught in two different classroom environments when I observed him. The first time I observed him, he taught in the Olin Engineering building computer lab that was the size of a conference room—computers faced the walls and lined the east and west walls of the room. There was some natural light in the room due to one side of the room having windows that were close to the ceiling.
There was one whiteboard in the room on the north wall and empty cubicles on the south wall. The entrance was on the southwest side of the room. The second and third observations I observed him in the Biology building computer lab. The front of the room has an instructor’s desk with computer that is linked to the projection system, which projects the computer images on a retractable projection screen behind the instructor desk. The whiteboards in the room were behind the retractable screen in the front of the room. The students each have their own computer and sit in rows facing the front of the room. There is an aisle down the center of the room leading to the instructor’s desk. The entrance is in the back corner of the room.

*Round one observations.* When I first observed Robert, I noticed he was very informal in how he taught. He wore jeans and a t-shirt to class, gave no introduction to the lab, and used mostly auditory teaching methods. Robert often stretched throughout the class, which could be distracting. He did not use visual aids except for when he performed demonstrations on his arm. Robert did not ask the students any questions and interacted with them mostly one-on-one. The students were very comfortable with him and were free to ask him any questions.

*Round one reflection journal analysis.* When conducting a content analysis of Robert’s round one reflection journal, I found that he had self, task, and impact concerns (Table 4.23, p. 210). He reflected at a routine level in the following excerpt of his journal regarding self concerns: “I am picking up on the nuances of being a TA. I believe I am transitioning smoothly from student to teacher. I feel my
TA skills are improving as the weeks go by.” Robert reflected at a technical level in the following extractions from his journal regarding task-related concerns:

Balancing my different workloads has been difficult at times, but I am adjusting. This is the first time the lab has been offered at our school, so our workload picks up sometimes (unexpectedly).

When my students take the information I give them, and give it their own real-world context, I know that they have understood the lesson.

Round two observations. I observed Robert instructing the students to use Biomedical Engineering software to build an object the same as he was doing. Most of his students were able to follow him, but a Russian girl and a couple of Arabic females had trouble staying with the class. At the end of class, Robert had to ask the Arabic girls to leave, and they hadn’t finished all of their work. He explained during the class that all values the students used in their models must be supported by research and periodically walked around and checked their work. Robert’s body language was useful in that he used body movements to explain what he was talking about. Although he still stretched a lot throughout class just as in the last class I observed.

Round two reflection journal analysis. When conducting a content analysis of Robert’s second round reflection journal, I found that he had self and task
concerns (Table 4.23, p. 210). He reflected at a routine level as evidenced in the following journal passage regarding some self-related concerns:

I do realize, after watching the video of class, that sometimes when in the projector-type classrooms, I need to speak up more. Also, watching for distracted students (playing on the computer) is important, because it distracts so many students around the individual as well.

Robert reflected at a technical level supported by the following excerpt from his journal focusing on task-related concerns:

I take pride in presenting interesting and meaningful information to my students. I often have the chance (to some extent) what is taught. I try to make sure the lessons are relevant to the students and their lives right now. I make sure to add in my advice on the topic, including but not limited to: suggesting research ideas, discussing alternate class options for their future, explaining how the in the “real world,” and speaking about my own recent experiences as an undergraduate.

Students have shown they (for the majority) really understand what I am explaining. Their lab reports are usually exactly what I am looking for. To further this, I have talked with them on several occasions, about what is required of them with regards to the reports. I feel their tasks are very clear and it shows when they turn in high quality work.

Round three observations. On the third time I observed Robert’s classroom, he was teaching the students how to use Excel. During the course of this class, I
found it hard to see Robert because the room was dark and he sat behind the computer. I also found it hard to pay attention to the lesson because he had a monotone voice as he was explaining the program. Compounding the situation, his students were talking loudly during class so that it was difficult to hear him. Due to their misbehavior, I was not entirely sure that his students were following along.

Round three reflection journal analysis. When conducting a content analysis of Robert’s third reflection journal, I found that he had three self concerns and a task concern (Table 4.23, p. 210). Robert reflected at a routine level as evidenced by the following passage in his journal of a self-related nature:

The most rewarding part of being a TA is seeing some of the students really get involved in the classes. I can tell they have learned a lot and many of them have chosen final projects based off the lessons we had throughout the semester. I feel I have done a fine job as a TA, there were some kinks along the way, but I tried to handle them as fairly and professionally as possible.

Robert reflected at a technical level as evidenced by the following excerpt extracted from his journal:

My biggest struggles this semester were finding time—I had a lot of responsibilities, both on campus and off, and I found that I had to commit more time to my TA duties than expected based off my contract. But such is life, and I appreciate being a TA—I have really grown as both a teacher and a student.
**TCQ post-assessment.** At the end of my study, Robert’s highest level of concern on the TCQ was very concerned (Table 4.24, p. 211), which he named two impact concerns—guiding intellectual growth and seeing that the student gets what he/she needs. Robert was moderately concerned about being accepted by professionals (self), maintaining class control (self), lacking instructional materials (task), and challenging unmotivated students (impact). Robert was a little concerned about doing well in front of a superior (self), feeling adequate as a teacher (self), getting a favorable teaching evaluation (self), being under too much pressure (task), having too many non-instructional duties (task), meeting needs for different students (impact), and diagnosing learning problems (impact). He was not concerned about any of the other items listed on the TCQ. At the end of the TCQ, Robert added:

My biggest concerns were with language barriers with some students. That made it hard to connect with the student/s—and I could tell they weren’t very involved.

**Analysis and interpretation of Robert’s concerns.** According to the results of the TCQ pre-assessment (Table 4.24, p. 211), Robert was most concerned about a self concern (i.e., maintaining class control) and two impact concerns (i.e., guiding intellectual growth and seeing that the student gets what he/she needs). On the post-assessment, he was most concerned about two impact concerns (i.e.,
guiding intellectual growth and seeing that the student gets what he/she needs). Robert increased in concern from the pre-assessment to the post-assessment by two levels regarding challenging unmotivated students (impact). Robert increased in concern from the pre-assessment to the post-assessment by one level regarding being under too much pressure (task). He decreased in concern by two levels from pre-assessment to post-assessment in dealing with the routine and inflexibility of teaching (task).

According to the reflection journals, Robert had self and task concerns during the seminar and throughout each round of my study. His concern with being under too much pressure and maintaining class control on the TCQ could be linked to his concern with balancing workloads and creating relevant lessons in his reflection journals. However, both the TCQ pre-assessment and post-assessment did not support the lack of impact concerns in Robert’s reflection journal entries. There are a number of things that could have occurred that created this outcome, such as the following: his concerns may have changed completely and rapidly from data point to data point, not all of his concerns were divulged in the reflection journals, not all of his concerns were covered on the TCQ, and he lacked time to put much effort into submitting journals entries. I suspect that Robert may have held back information from his reflection journals as they were fairly brief. He seemed to be rushed or overly busy every time I saw him and this observation was confirmed in his round three journal. For this reason, I believe it was possible that
he felt too overwhelmed with his responsibilities to take much time to contemplate and reflect on his teaching enough to provide a decent journal entry.

The concerns Robert had most frequently in his reflection journals were somewhat consistent with Fuller’s (1969) theory. However, his TCQ results did not support this outcome so it is unclear as to whether Robert would have higher-level concerns had he enough time to process and reflect on his teaching

*Analysis and interpretation of Robert’s self-reflections.* During the GTA Seminar, Robert reflected at routine and technical levels (Table 4.23, p. 210). Robert continued to reflect at routine and technical levels in all three rounds of my study. These results seem to be consistent with theory because Robert, as a beginner, most often reflected at lower levels because he needed the proper scaffolding so that he can progress to the higher levels of self-reflection (Ward & McCotter, 2004). However, Robert’s time-restraints may have been a factor in his low self-reflection levels.

*Analysis and interpretation of Robert’s practice.* I could not detect any distinguishable pattern in Robert’s practice (Table 4.25, p. 220). He seemed to keep the same informal style of teaching throughout my study. I did not notice any changes in his practice or get feedback from him stating that he made or observed any changes in his practice. He mentioned needing to speak up and watch for distracted students in round two, but there was no evidence in my observation or his round three reflection journal that he had made this change.
Table 4.25

*Robert’s Progression of Teaching Practice*

<table>
<thead>
<tr>
<th>Source of Information</th>
<th>Round 1</th>
<th>Round 2</th>
<th>Round 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Angela Delp</strong></td>
<td>Observation form</td>
<td>Observation form</td>
<td>Observation form</td>
</tr>
<tr>
<td></td>
<td>Talked about Cortacoff sounds; did not use visual aids-all auditory and kinesthetic; helped students one-on-one; demonstrated with his own arm; did not ask students questions</td>
<td>Taught Biomed Engineering software; explained all values must be supported by research; walked around and checked their work periodically; did not ask students questions</td>
<td>Demonstrated use of Excel; monotone voice; difficult to hear and see him–classroom is dark and he is sitting behind his computer</td>
</tr>
<tr>
<td><strong>Robert</strong></td>
<td>Journal</td>
<td>Journal</td>
<td>Journal</td>
</tr>
<tr>
<td></td>
<td>Give information in real-world context</td>
<td>Make sure lessons are relevant to students and their lives;</td>
<td>No comments on practices</td>
</tr>
<tr>
<td><strong>Robert’s students</strong></td>
<td>Midterm Evaluations</td>
<td>End-of-course Evaluations</td>
<td>Not available</td>
</tr>
</tbody>
</table>

*Ruth.* Ruth was a White female from the U.S. in her early 20s working on a Doctorate in Mathematics. She was interested in a teaching assistant position because she enjoyed teaching, it aided her in the achievement of her career goals, and it benefited her financially. Before attending the GTA Seminar, she had worked as a teaching assistant at another university in Florida for the College Success course for 4 semesters. She also had worked as a mathematics and physics tutor for that same university for 3 years. She planned to become a professor once she
graduates or, secondarily, a business consultant. Ruth joined my study to receive feedback from me so that she could improve her teaching abilities.

*Microteaching journal analysis.* Ruth had self-related and task-related concerns throughout the microteaching journals (Table 4.26, p. 222). Ruth reflected at a routine level as evidenced by her self-related concerns extracted from her journals:

During my lesson, I kept saying “um” because I was nervous. I am terrible at public speaking, and my voice usually shakes so much that people can’t understand me.

The organization of my lesson did not go according to plan because I could not find a printer to print my lesson plan.

I felt comfortable with the course material. I might have looked a little nervous. I could have made better eye contact. I felt that my speech and visuals were clear. If I could reteach this lesson I would actually practice presenting it and have my printed lesson plan.

I feel that I have gotten more confident in teaching over the course of three lessons. I would have liked to have gotten better feedback about the areas in which I need to improve.

Ruth reflected at a technical level as evidenced by the following set of passages extracted from her journals focusing on task concerns:
Table 4.26

Ruth’s Progression of Reflection Levels

<table>
<thead>
<tr>
<th></th>
<th>During Seminar</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Routine Focus</strong>a</td>
<td>Verbal pause “um;” organization; comfortable with course material; little nervous; need work on eye contact; speech and visuals were clear; practice; liked better feedback; confidence</td>
</tr>
<tr>
<td><strong>Technical Focus</strong>b</td>
<td>Class participation poor; trouble getting students to answer my questions; holding students’ attention; more preparation</td>
</tr>
<tr>
<td><strong>Dialogic Inquiry</strong>d</td>
<td>Students liked graphical and computational element in lesson; plan to get feedback from students to review her teaching</td>
</tr>
</tbody>
</table>

**Round 1**

| **Routine Focus**a   | Not sure I’m adapted to being a TA; feel performance as TA isn’t good enough; unsure of myself; grading takes a lot of time; afraid to call out other students; nervous looking; speak louder |
| **Technical Focus**b | Preparation; keeping up with grading; do not know what questions to expect from students; ask students to tell me what step comes next; difficulty balancing TA responsibility with own responsibilities as a student; try engaging students; same students respond to questions; students seem to understand but it isn’t reflected in their grades |

**Round 2**

| **Routine Focus**a   | More confident; nervous; uncomfortable; more comfortable one-on-one than in front of classroom; teach like professors in undergrad; difficult to teach Math |
| **Technical Inquiry**c | My grading is different from other TAs’ grading; students who need help don’t come to office hours; students have virtually no experience in theory and simply know applications; not sure how to actively engage students; difficult time explaining things; need to be more engaging |

**Round 3**

| **Routine Focus**a   | Room for improvement |
| **Technical Focus**b | Can’t be sure students understand lesson; need to be more engaging; need to gauge students’ understanding better; time management; too much to do to perform well at any of her responsibilities; some students are motivated to learn, but others are reluctant; difficult to motivate students |

*Note. aRoutine Focus = Focus is on self-centered concerns. bTechnical Focus = Focus is on specific teaching tasks. cTechnical Inquiry = Questions are implied by frustration, subject stops asking questions after initial problem is addressed. dDialogic Inquiry = Questions are asked with consideration of perspectives of students, peers, and others. See Ward and McCotter’s (2004) rubric for more detailed descriptions.*
I sought out participation from the audience, but no one would answer/ask questions besides the facilitator.

I was able to hold the audience's attention through the use of various forms of media in addition to writing on the whiteboard.

In short, I would have arrived more prepared. Ruth reflected at a dialogic level as evidenced by the following passages extracted from her journals that show Ruth’s interest in the perspectives of students:

The other students told me they liked that I included a graphical and computational element into my lesson plan today.

I plan to ask my students to write an anonymous review of my teaching after the first few weeks so that I can identify any other areas that I need to work on and also identify a way to cater to their unique learning styles.

TCQ pre-assessment. At the start of the semester, Ruth’s highest level of concern recorded on the TCQ pre-assessment was extremely concerned (Table 4.27, p. 224), which she chose three self concerns—doing well in front of a superior, being accepted by professionals, and getting a favorable teaching evaluation. The next highest level of concern she had was moderately concerned about being under too much pressure (task) and seeing that the student gets what
Table 4.27

Ruth's Responses to Self, Task, and Impact Items of the Pre- and Post-assessment Teacher Concerns Questionnaire

<table>
<thead>
<tr>
<th>Self Concerns</th>
<th>Pre(^a)</th>
<th>Post(^b)</th>
<th>Diff(^c)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doing well in front of a superior</td>
<td>5</td>
<td>3</td>
<td>-2</td>
</tr>
<tr>
<td>Feeling adequate as a teacher</td>
<td>2</td>
<td>5</td>
<td>+3</td>
</tr>
<tr>
<td>Accepted by professionals</td>
<td>5</td>
<td>2</td>
<td>-3</td>
</tr>
<tr>
<td>Getting a favorable teaching evaluation</td>
<td>5</td>
<td>3</td>
<td>-2</td>
</tr>
<tr>
<td>Maintaining class control</td>
<td>2</td>
<td>3</td>
<td>+1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Task Concerns</th>
<th>Pre(^a)</th>
<th>Post(^b)</th>
<th>Diff(^c)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of instructional materials</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Under too much pressure</td>
<td>3</td>
<td>5</td>
<td>+2</td>
</tr>
<tr>
<td>Too many non-instructional duties</td>
<td>1</td>
<td>3</td>
<td>+2</td>
</tr>
<tr>
<td>Too many students each day</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Routine and inflexibility of teaching</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Impact Concerns</th>
<th>Pre(^a)</th>
<th>Post(^b)</th>
<th>Diff(^c)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meeting needs for different students</td>
<td>2</td>
<td>3</td>
<td>+1</td>
</tr>
<tr>
<td>Diagnosing learning problems</td>
<td>1</td>
<td>3</td>
<td>+2</td>
</tr>
<tr>
<td>Challenging unmotivated students</td>
<td>1</td>
<td>3</td>
<td>+2</td>
</tr>
<tr>
<td>Guiding intellectual growth</td>
<td>1</td>
<td>2</td>
<td>+1</td>
</tr>
<tr>
<td>Student gets what he/she needs</td>
<td>3</td>
<td>2</td>
<td>-1</td>
</tr>
</tbody>
</table>

Note. \(^a\)Pre = pre-assessment. \(^b\)Post = post-assessment. \(^c\)Diff = post-assessment score minus pre-assessment score. 1 = Not concerned, 2 = A little concerned, 3 = Moderately concerned, 4 = Very concerned, 5 = Extremely concerned.

Ruth was a little concerned about feeling adequate as a teacher (self) and meeting needs for different students (impact). Ruth was not concerned about any of the other items listed on the TCQ. She answered that she was not concerned about diagnosing learning problems; however, she seemed to contradict that response when she answered the open-ended question at the end of the TCQ when she added:
If I notice a student appears to have a learning disability or testing anxiety, and they are currently not registered with disability services I am completely unsure of what to do. It is troubling not knowing how much to approach the student or the situation. I am not sure of my responsibilities and limitations in situations like this.

Setting. Ruth was a teaching assistant for Calculus II. She had one lab section that meets on Mondays and Wednesdays from 12 p.m. to 1 p.m. I observed her class on Monday afternoons. In her Monday lab section, she had a total of 24 students: four International females, six U.S. females, eight International males, and six U.S. males. All of the U.S. females were White. All of the U.S. males were White. Ruth's main task during the lab was to work assigned problems on the board and help the students when needed.

Ruth’s classroom was an auditorium that could hold 118 students. The students sat mostly toward the front of the classroom in theater-type seats that had small foldable personal desks. The seats were arranged in an orchestra formation facing the front of the room where there were two whiteboards, a retractable projection screen, podium, and instructor's desk. There were three columns of seats with aisles on both sides of each column leading to the front of the room. The two middle aisles led to the two exits at the back of the room. In between the two exits was a small media-production room with a window. The only equipment I saw Ruth use each time I observed her was the whiteboard. From what I observed and
what Ruth communicated, she never made full use of the classroom (e.g., had a full class or made use of the multimedia system).

**Round one observations.** When I first observed Ruth, she was working problems on the board for her students. Her board work was legible and had good spacing, size, and placement—on rare occasion some things seemed small. Ruth constantly asked her students questions about what should be done throughout her problems. Different students would answer her questions; however, many students remained quiet. The students were free to ask her questions about anything that confused them. Sometimes Ruth seemed a little confounded by what the students would ask her. She faced her students when she wasn't writing on the board and when a student asked her a question. Ruth spoke with a good tone of voice for the most part—sometimes she seemed to be a little quiet. Ruth confirmed much of what I had observed as evidenced by her journal passages provided in the following paragraph.

**Round one reflection journal analysis.** When conducting a content analysis of Ruth’s round one reflection journal, I found that she had self and task concerns (Table 4.26, p. 222). She reflected at a routine level in the following excerpts of her journal regarding self concerns:

I'm not sure how well I've adapted to my role as a TA. I try to take it one day at a time.
I feel my performance as a TA is a little bit below what it should be.

I suppose I feel unsure of my abilities, and I think the students can see this by the amount of time it takes me to answer their questions.

Grading for three sections takes up a lot of my time. I feel like I am constantly behind in my own school work.

I'm nervous to call out other students by name and have them answer the question. I feel like this would make them nervous or put on the spot.

After reviewing the tape, I can see that I take too long to answer questions. I look as though I'm trying to be too careful. I also look very nervous because I have the nervous tick of touching my hands to my head or touching the paper I'm holding to cover my face. I should also work on speaking louder. I'm not sure if this is because of the audio quality, or if I really do speak softly.

Ruth reflected at a technical level of reflection in the following extraction from her journal regarding task-related concerns:

I prepare for the recitation about an hour before the class to review the material and work the exercises on my own. I am able to keep up with my grading responsibilities, which is important. I try to make sure all of my grading and lab-preparation takes place on the same day. I try not to leave anything to the next day.
I have never taught Calculus II before, so I do not know what to expect as questions from the students.

I try to see if the students understand what I'm teaching them by presenting the information and asking them what step comes next in solving the problem. I also ask if everything is clear and allow them time to ask questions before moving on to the next problem.

I feel like I have not been able to balance my TA responsibilities with my own responsibilities as a student. I have a unique situation where I'm a TA for one section of Calculus II, but I grade for two sections, and I also am in training to be a TA for the PDE course. So I have to attend twice as many lectures and review twice the amount of material.

I'm concerned with how to engage my students. I try to ask them to guide me through the problem so I can check their understanding, but usually the same set of about five students responds to me.

I'm also concerned because in lab and in office hours, some students seem to really understand the material, but this is not reflected in their grades. I have no idea why this might be happening.

Round two observations. I observed Ruth work problems once again on the board for the second round of my study. This time she had to explain Precalculus stuff on a whim. Ruth still seemed to be confounded by the questions her students would ask her. Ruth continued to attempt engaging her students by asking them
questions, but only five or six students would shout back responses. Ruth talked to the board several times during this class. She seemed a little timid or shy about facing or looking at the students. Her voice was just a little too quiet, but as long as none of the students were talking (they rarely did when I observed), I could hear her just fine. Her writing on the board was clear but somewhat small.

As I was burning Ruth a DVD and packing my things to go, Ruth told me that she was experiencing troubles with her family and had to provide childcare for her sister who was sick. She had announced before class had started that she had to cancel her office hours because of a family emergency. The hours were moved to Wednesday in replacement. Her performance today could be the result of this pressure as she also had told me she was three weeks behind on work.

*Round two reflection journal analysis.* When conducting a content analysis of Ruth’s second round reflection journal, I found that she had self and task concerns (Table 4.26, p. 222). She reflected at a routine level as evidenced in the following journal passages regarding self-related concerns:

I feel like I'm more confident in my abilities to teach. However, according to my midterm evaluations, my students still say I seem nervous. From looking at these videos, I feel like I am the stereotypical math teacher. I present information in a bland manner. Math is a boring subject for most students to begin with, and I have a very uninspiring personality when I am in front of a group of people. I am uncomfortable being in front of group of people. I don't feel nervous, but I feel uncomfortable. I have no idea how to
overcome this in order to be more engaging. I feel like it would change after years of experience, but this is my first semester in teaching. Most of my students know that I want to help them as much as possible and I'm always available to answer their questions. I just feel like my lectures are not as beneficial as the one-on-one sessions that I have with students. This is probably because I worked as a private tutor for four years, and tutoring one person is much different than lecturing to a group of people.

I feel like I teach the same way virtually all of my mathematics teachers taught during my undergrad. Most of the professors here teach the same way. I've only seen two math professors who teach differently here. They more or less have conversations about Mathematics with the students. However, this does not really work. While the conversations help the students understand the theory, they still have no idea how to solve the problems. These conversations take up more class time and fewer examples are demonstrated.

Math is a notoriously difficult subject for students to learn, and Math teachers have a bad reputation. After teaching this semester, I've realized that Mathematics is actually very difficult to teach. It's very difficult to be engaging when the material is not something that can be easily visualized or seen in day-to-day life. I hope that someone in education can develop forms of teaching Mathematics that helps students because the typical advice given to teachers does not easily relate to Math courses.

Ruth reflected at a technical level supported by the following excerpts from her journal regarding task-related inquiries:
I'm not sure how to actively engage the students in learning. I try to get them to answer questions about the material they've seen before. On this class date, the information was new and they had not seen it before. So I try to write out as much background information as possible and explain it as well as possible. I noticed I have a difficult time explaining things from different angles. I have a lot of background in the theory behind calculus, and the students here have virtually no experience in theory. They simply know applications. So when they ask a question which has an answer that is based in the fundamental theory behind Calculus, I have a difficult time explaining the practical answer—or the "why" they need to do it a certain way.

The students do not understand the grading rubrics very well. I grade much easier than most TAs. For each quiz or test there are multiple GSAs doing the grading. Each GSA typically grades one page. I've had students ask me why certain points were taken off for various things, but I cannot explain it if another GSA has graded that page. If I feel the question was graded too harshly, I try to give the student partial credit.

I try to encourage the students to come see me for questions. I always announce my office hours and locations I try to hold additional office hours if there is a test coming up soon. Many students take advantage of these additional office hours, and the students who come in for extra help typically score higher on tests and quizzes. By constantly announcing office hours, I'm trying to get the students to realize that I expect to see them if they need help. But the students who habitually perform poorly rarely come to see me, or they will make an appointment with me and not show up. It's a
little frustrating when this happens. I want them to do well, but I can't help them if they don't come see me.

*Round three observations.* On the third time I observed Ruth’s classroom, she was teaching about convergence. She explained to the class why they must write out two statements to support their claim of convergence and choose a dominant term. Ruth was very thorough in explaining things—even referring to mistakes made on the quiz. Ruth did most of the talking and had very little interaction with the students during class. She was clear, well-spoken and didn't have any verbal pauses.

*Round three reflection journal analysis.* When conducting a content analysis of Ruth’s third reflection journal, I found that she had a self concern and some task concerns (Table 4.26, p. 222). Ruth reflected at a routine level as evidenced by the following excerpt from her journal of a self-related nature: “I feel like I have done my job, but I'm not sure if I was the most effective teacher.” Ruth reflected at a technical level as evidenced by the following passages extracted from her journal regarding her task concerns:

I can explain something and the students may say they understand it, but I can't be sure that they have.

There is definitely room for improvement. I can be more engaging and learn how to gauge the class's understanding better.
I feel that some students either know Math or want to put forth effort to learn it, and there are some students who refuse to show up to class or practice the problems. There will always be this gap in the student population, and it's really hard to motivate them to show up to class and do the work they need to do to succeed.

The biggest challenge has been time management—being able to prep for Calculus II, PDE course, and my three grad classes. I feel like with everything going on I have been a lackluster student and an average TA.

*TCQ post-assessment.* At the end of my study, Ruth’s highest level of concern on the TCQ was extremely concerned (Table 4.27, p. 224), which she named one self concern and one task concern—feeling adequate as a teacher and being under too much pressure. Ruth was moderately concerned about doing well in front of a superior (self), getting a favorable teaching evaluation (self), maintaining class control (self), having too many non-instructional duties (task), meeting needs for different students (impact), diagnosing learning problems (impact), and challenging unmotivated students (impact). Ruth was a little concerned about being accepted by professionals (self), guiding intellectual growth (impact), and seeing that the student gets what he/she needs (impact). She was not concerned about any of the other items listed on the TCQ. At the end of the TCQ, Ruth added:
As the semester ends, the biggest issue is getting students to attend class. Many of them have been skipping both lecture and lab. Many fail to even show up on quiz day. I'm concerned with how to motivate students, but at the same time I can't control whether or not they attend class.

**Analysis and interpretation of Ruth’s concerns.** According to the results of the TCQ pre-assessment (Table 4.27, p. 224), Ruth was most concerned about three self concerns (i.e., doing well in front of a superior, being accepted by professionals, and getting a favorable teaching evaluation). On the post-assessment, she was most concerned about a self concern (i.e., feeling adequate as a teacher) and a task concern (i.e., having too many non-instructional duties). Ruth increased in concern from the pre-assessment to the post-assessment by three levels regarding feeling adequate as a teacher (self). Ruth increased in concern from the pre-assessment to the post-assessment by two levels regarding being under too much pressure (task), having too many non-instructional duties (task), diagnosing learning problems (impact), and challenging unmotivated students (impact). She decreased in concern by two levels from pre-assessment to post-assessment regarding doing well in front of a superior (self) and getting a favorable teaching evaluation (self).

According to the reflection journals, Ruth had self, task, and impact concerns during the seminar. Then she had only self and task concerns throughout
the three rounds of my study. Although most of the TCQ pre-assessment did not support her early reflection journal entry, the post-assessment supported her concerns mentioned in her round one, two, and three journals. For instance, her two highest concerns on the TCQ post-assessment can be matched with statements she made in her reflection journals. Feeling inadequate as a teacher on the TCQ post-assessment matched with her aggregated statements from the reflection journals of all three rounds: being unsure of herself as a TA (round one), being uncomfortable in front of the class (round two), and feeling that she was too busy to perform her TA work well (round three). Her extreme concern for being under too much pressure on the TCQ post-assessment matched with her statements about her difficulty balancing her TA responsibility with her own responsibilities (round one) and having too much to do to perform well at any of her responsibilities (round three).

Ruth responded "moderately concerned" to items on her TCQ post-assessment that matched to her statements of concern in her journals. Although she never mentioned in her journals anything about being concerned with doing well in front of a superior, getting a favorable teaching evaluation, and maintaining class control, I suspect these moderate concerns are all linked to her feeling inadequate as a teacher. As for having too many non-instructional duties, Ruth made clear that this was a problem in her round one and round three journals when she mentioned how much time it took her to grade (round one), difficulty balancing
responsibilities (round one), and having too much to do to perform well (round three). I am unsure what statements exactly link to her moderate concern about meeting needs for different students, but it appears that could relate to her problems dealing with students that having various backgrounds, motivations, and abilities. I believe her concern with diagnosing learning disabilities is linked to her issue of students understanding the material in lab and office hours, but then not making good grades (round one). Finally, her moderate concern of challenging unmotivated students was mentioned in her round three journal when she discussed how she had students that wouldn't show up to lab.

I think quite possibly Ruth was more than moderately concerned about the items she marked as such in the TCQ post-assessment. I believe she may have been limited by the scale of 1 to 5 in her ability to express how much more concerned she was about feeling inadequate as a teacher and being under too much pressure. It was clear to me that these two concerns were the main focus for her and every concern after that could have been seen as a contributing factor to those two main concerns. Because Ruth’s concerns were mostly lower-level concerns, her case was somewhat consistent with Fuller’s (1969) theory.

*Analysis of Ruth’s self-reflections.* During the GTA Seminar, Ruth reflected at routine, technical, and dialogic levels (Table 4.26, p. 222). Ruth continued to reflect at routine and technical levels in all three rounds of my study. These results are consistent with theory because Ruth, as a beginner, most often reflected at
lower levels because she needed the proper scaffolding so that she can progress to the higher levels of self-reflection (Ward & McCotter, 2004). She did not even see the video recordings of her teaching as beneficial feedback, so this perspective may have limited her ability to reflect.

**Analysis of Ruth’s practice.** I could not find any evidence of change in Ruth’s practice (Table 4.28, p. 238). However, Ruth’s students, Ruth, and I all discussed her quiet voice and her tendency to take a lot of time answering questions. I observed that she was timid; Ruth's students observed that she was nervous; and Ruth stated that she was uncomfortable in the front of the classroom. Both Ruth and her students made statements about her being unsure or uncertain of herself and having a difficult time explaining things. At the end of my study Ruth communicated the following:

I was anticipating receiving feedback from the researcher so that I could improve my teaching abilities, but I did not receive feedback. I've gotten to see myself teach on video, but it is not very beneficial. I can see the behavior that needs to be corrected, but I have no idea how to correct it.

As Ruth stated, she was well aware of what wasn't going well with respect to her teaching. She observed the same things that her students and I observed. However, as observed by all three contributing resources, she was unable to make any changes to solve these issues.
<table>
<thead>
<tr>
<th>Source of Information</th>
<th>Round 1</th>
<th>Round 2</th>
<th>Round 3</th>
</tr>
</thead>
</table>
| Angela Delp           | Observation form
Sometimes flustered by student questions but always worked through it; constantly asked students questions what next step is; Good boardwork but occasionally small; good tone of voice but sometimes too quiet | Observation form
Writing is clear but somewhat small; asked questions of the audience in general and 5-6 students shout back answers; she seems flustered by student questions—not sure she can identify with their confusion; a little timid about looking at students; just a little too quiet | Observation form
Mostly big, clear writing but some small parts in fractions are hard to see; she did most of the talking; there was very little interaction with students |
| Ruth                  | Journal
Unsure whether adapted to TA role; feel TA performance is below what it should be; unsure of my abilities; ask students what comes next in solving the problem; take too long to answer questions; need to speak louder | Journal
More confident in ability; not sure how to actively engage students; provided background information; difficult time explaining things in different ways; have a difficult time explaining things without referring to theory; present information in bland manner; | Journal
Feel like have done job, but not sure if effective teacher; lackluster TA |
| Ruth’s students       | Midterm Evaluations
Nervous; goes over definition and gives thorough examples; need more knowledge; a little quiet sometimes; very knowledgeable; knowledgeable but makes mistakes; she gets confused a lot; stands in front of writing, can’t see; takes too much time for one question; seems uncertain of herself; having hard time to explain | End-of-course Evaluations
Slow down and allow more questions; look over lecture note carefully beforehand; be less nervous; talks quietly sometimes |
Coached video reflection (CVR) group member case studies. Members of the coached video reflection group \((n = 5)\) were interviewed, observed, and filmed by me three different times over the Fall 2012 semester (i.e., September/early October, late October, and early November). These participants were interviewed for roughly 20 minutes before their observed classes. Once the observation was finished, a DVD of the class was burned and provided to the participant. I instructed the participants to view, at a minimum, 15 minutes of their instruction on the video and then meet for the post-interview. Once I had processed my observation and the participant had watched the video, I held a post-observation interview with the GTA where I provided feedback from my observation and analysis in an interview setting. Afterward, the participant filled out his or her reflection journal. The resulting data collected from this group included the Background Information Survey, three microteaching reflection journal entries, pre- and post-TCQ responses, three TA observation forms, three video recordings, six interviews, three reflection journal entries, and student evaluations.

Karen. Karen was a White female from the U.S. in her early 20s who recently finished her bachelor’s degree and was continuing her education in the Physics Doctoral Program at Florida Tech. She was interested in a teaching assistant position so that she could obtain financial benefits, learn new skills, and interact with students. Before participating in the GTA Seminar and starting work as a TA in Fall 2012, she had 1-2 semesters of experience as a grader and tutor for
a college physics class at a 4-year university. She had also worked for Upward Bound another 1-2 semesters where she taught an introductory physics class to high school students. Each day in the Upward Bound program, she gave a lecture and asked the students to work together to solve problems. Karen intended to get a government or industry job once she finishes her program. Eventually, she would like to teach after working in her field.

Microteaching journal analysis. When I used the Ward and McCotter (2004) rubric to conduct a content analysis of the microteaching journal entries that Karen completed during the seminar, I found that she had mostly self-related and task-related concerns (Table 4.29, p. 241). Her self-related concerns included statements like the following: “I felt that I often spoke clearly, looked at the students, and asked questions. However, I stumbled along a few times speaking and said the phrase ‘okay, so’ far too much.” I determined that these concerns were at a routine-focus level of reflection. Her task-related concerns included her observations of students answering questions successfully and her difficulty in understanding why a student was confused. She reflected at a technical-focus level of reflection when she noted, “I think my students did learn. I had some nodding and questions that were asked. I heard a few ohh’s.” She reflected at a technical inquiry level when she stated, “I sometimes have trouble understanding why the student is confused.” Finally, Karen reflected at a technical change level, “I will continue to listen and observe my students to better help them learn.”

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Table 4.29
Karen’s Progression of Reflection Levels

<table>
<thead>
<tr>
<th>During Seminar</th>
<th>Routine Focus(^a)</th>
<th>Technical Focus(^b)</th>
<th>Technical Inquiry(^c)</th>
<th>Technical Change(^d)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Speech; eye contact; comfort with material; need to practice; confidence; and movement around the classroom</td>
<td>Referenced students answering questions and saying “ohh” – as a success</td>
<td>Trouble understanding students’ questions and why they are confused</td>
<td>Plans to work on understanding students’ questions</td>
</tr>
</tbody>
</table>

**Round 1**

<table>
<thead>
<tr>
<th></th>
<th>Technical Focus(^b)</th>
<th>Technical Inquiry(^c)</th>
<th>Technical Change(^d)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Observed students answering questions correctly - a success; balancing life (managing time); behind schedule in grading; poor preparation</td>
<td>Not understanding students’ questions; time spent grading</td>
<td>Plan ahead for what students may ask</td>
</tr>
</tbody>
</table>

**Round 2**

<table>
<thead>
<tr>
<th></th>
<th>Technical Focus(^b)</th>
<th>Technical Inquiry(^c)</th>
<th>Technical Change(^d)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Observation of students referencing board and not asking questions as success (understanding); asking questions that are easily answered; emailing alerts to students</td>
<td>Received feedback from students about lab partnering, grades, and preparation</td>
<td>Plans to allow students to choose lab partners; addition of a mini-lecture about the grading rubric; give mini-lecture about lab</td>
</tr>
</tbody>
</table>

**Round 3**

<table>
<thead>
<tr>
<th></th>
<th>Routine Focus(^a)</th>
<th>Technical Inquiry(^c)</th>
<th>Technical Change(^d)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Enjoy helping students and answering questions; have done a decent job</td>
<td>Student claims labs were turned in but they “went missing;” there are students not turning in any assignments; students are not always excited to be in class; have trouble understanding students’ questions</td>
<td>Told class that casual conversation is not appropriate; plan to type/write lesson; establish trust and have a more consistent schedule; made choices on student with work that “went missing”</td>
</tr>
</tbody>
</table>

Note: \(^a\)Routine Focus = Focus is on self-centered concerns. \(^b\)Technical Focus = Focus is on specific teaching tasks. \(^c\)Technical Inquiry = Questions are implied by frustration, subject stops asking questions after initial problem is addressed. \(^d\)Technical Change = Personally responds to situation, but does not use the situation to change perspective. See Ward and McCotter’s (2004) rubric for more detailed descriptions.
**TCQ pre-assessment.** At the start of the semester, Karen’s highest level of concern recorded in the TCQ was moderately concerned, which she noted a self and impact concern: maintaining class control and seeing that the students get what they need (Table 4.30). She responded that she was a little concerned about feeling adequate as a teacher (self), being under too much pressure (task), meeting the needs of different students (impact), challenging unmotivated students (impact),

<table>
<thead>
<tr>
<th><strong>Self Concerns</strong></th>
<th>Pre</th>
<th>Post</th>
<th>Diff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doing well in front of a superior</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Feeling adequate as a teacher</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Accepted by professionals</td>
<td>1</td>
<td>2</td>
<td>+1</td>
</tr>
<tr>
<td>Getting a favorable teaching evaluation</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Maintaining class control</td>
<td>3</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Task Concerns</strong></th>
<th>Pre</th>
<th>Post</th>
<th>Diff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of instructional materials</td>
<td>1</td>
<td>2</td>
<td>+1</td>
</tr>
<tr>
<td>Under too much pressure</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Too many non-instructional duties</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Too many students each day</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Routine and inflexibility of teaching</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Impact Concerns</strong></th>
<th>Pre</th>
<th>Post</th>
<th>Diff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meeting needs for different students</td>
<td>2</td>
<td>1</td>
<td>–1</td>
</tr>
<tr>
<td>Diagnosing learning problems</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Challenging unmotivated students</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Guiding intellectual growth</td>
<td>2</td>
<td>1</td>
<td>–1</td>
</tr>
<tr>
<td>Student gets what he/she needs</td>
<td>3</td>
<td>2</td>
<td>–1</td>
</tr>
</tbody>
</table>

and guiding intellectual growth (impact). She wasn’t concerned about any of the
other items mentioned in the TCQ, although she added, “I feel concerned that my
students will start to see me as a friend because I’m close in age to them.”

Setting. During the fall 2012 semester, Karen was a TA for two Physics I
labs in the same classroom—one on Wednesday and another on Friday. I observed
her Wednesday class first, and her Friday class for the second and third
observations. The Wednesday class had 11 total students: five U.S. males, two
International males, three U.S. females, and one International female. Of the U.S.
females, one was White, one was multiracial, and one was unknown. Of the U.S.
males, four were White and one was a native Hawaiian. The Friday class had 13
total students: five U.S. males, two International males, and six U.S. females. Of
the U.S. females, five were White and one was unknown. Of the U.S. males, two
were White, two were Black, and one was Hispanic. Karen’s main task during class
time was to guide the students through their lab work and answer their questions
when necessary.

The laboratory classroom where she taught had a teacher’s lab table in the
front of the room with a white board just behind it. Students were scattered
throughout the room in lab groups at individual lab tables. The lab tables were
equipped with water, gas, electrical plugs, instrumentation (unique to each lab), and
Macintosh computers. There were 10 lab stations for students; six stations were
along three walls and four were free-standing in the middle of the classroom. The classroom entrance was in the front of the room next to the teacher’s lab table.

Karen’s age was close to that of her students. The first lab I observed, she wore shorts and looked no different in the way she appeared from her students. She told me, “It wasn’t a normal day for me… I usually never wear shorts to lab.” In the third reflection journal of my study, she confided that she had problems with her students seeing her as an equal. In this regard, she stated the following:

I have had a student try to have casual conversation with me through email. He seemed persistent to get a response from me about ‘movies’ and ‘Halloween’...I decided to ignore his emails after a while and then announce in class that such casual conversation is inappropriate.

During all three observations, Karen consistently walked around the lab throughout the class time to make sure her presence was known, giving her students the opportunity to ask her questions easily at any time. She enjoyed her work as a TA, but during the first and third rounds of the study continued to mention how she struggled to understand what her students were asking her. “While sometimes, I don’t understand a student’s question, I tend to answer the questions correctly. On occasion, I become confused as well. I should think ahead of time about what the students might ask.”

Round one observations and interviews. In an interview before I observed Karen for the first time, I asked her what concerned her most regarding her class.
She told me that there were some students who were cheating and others who were not turning in work. Then I observed Karen as she stood in the front of the classroom and gave the students tips on how to improve their lab reports. Afterward, she briefly talked through that lab’s procedures and told the students to commence their work all the while not asking any questions to check the understanding of the students. I noted in my observations that certain students demanded more of her time one-on-one. Karen confirmed this observation with the following statements:

Two groups in my lab dominated my time by asking questions. I came to the realization that what’s really going on is the students rely on me answering their questions instead of being prepared for lab or attempting to answer questions themselves. Instead of answering questions in the future, I intend to ask them questions to get them to think for themselves.

However, she also noticed how confused many of the lab groups were when she watched the video of her teaching. She responded with the following in her journal:

Actually seeing how confused groups were was also enlightening. I believe it will be useful from now on to provide an outline for the day on the board. That way they can visually see what they will do that day, and I don’t have to keep verbalizing what they need to know.
Round one reflection journal analysis. When conducting a content analysis of Karen’s round one reflection journal, I found that she had task-related concerns (Table 4.29, p. 241). She had a technical level of self-reflection when she focused on the following task-related concerns in the following excerpts of her journal:

I have fallen behind a few times in grading, and I’m not always prepared enough for the first class each week.

Balancing my life is difficult. I have family that I talk with daily and that takes up hours each day. I also have a large amount of homework.

Being a TA can take a backseat some weeks when things are rough in classes. I still feel that I do okay though.

She reflected at a technical level when she had an inquiry that was followed by a change in the following excerpts of her journal: “While sometimes, I don’t understand a student’s question, I tend to answer the questions correctly. On occasion, I become confused as well... I will think ahead of time about what the students might ask.”

Round two observations and interviews. Before I observed her for the second time, I found out that Karen had seen her midterm evaluations. “The midterm evaluations were exactly what I expected, ‘be more prepared.’ My thoughts on this are that it is difficult to know what questions the students will ask
unless you’ve actually done the lab with students.” I was also curious as to how she was dealing with the students that monopolized her time. She said,

As far as trying to help students use their time more wisely during lab, I put the needy students with certain lab partners to decrease questions. This has helped decrease the amount of questions from the needy students, but students have still had trouble focusing on their assignments, taking longer than normal to do labs. I have heard from another GTA that has had trouble with the same thing.

Once she started teaching, I noticed that she changed the format of class. She told me, “I have discovered that if I prepare a small lecture before the lab it seems to help the students understand it better and get through it more smoothly.” She also changed how lab partners were chosen. She told me the following:

I have found it difficult to rotate lab partners as recommended by my supervisor as so many students have dropped out of the course. Right now I think I may continue to allow them to choose their partners in order to avoid the complications of partners that don’t work together.

She had arrived at this new way to pair lab partners due to midterm feedback. She also changed the roles lab partners would perform. The following was extracted from her journal:

I have found that students tend to monopolize lab roles when left unchecked. For instance, students who are strong in Excel tend to stay on
the computer for the entire lab. I intend to address this problem by requiring them to rotate roles in lab.

Round two reflection journal analysis. When conducting a content analysis of Karen’s second reflection journal, I found that she, once again, had completely task-related concerns (Table 4.29, p. 241). She reflected at a technical level when she focused on tasks in the following extractions from her journal:

I think a good portion of my students understand the material I present. Those students tend to reference the board to discuss parts of the lab, and they don’t have questions about material that I have covered in detail.

To engage my students in class, I like to ask questions that I think can be easily answered.

I have to do a lot of emailing in order to alert some students of their grades and missing assignments. Karen reflected at a technical level when she questioned the feedback she received from her students regarding lab partnering, grades, and preparation (task). Finally, she reflected at a technical level when she decided to make the following changes she stated in her journal: “I let them work with whatever group they wanted... The biggest change that I have made is the addition of a mini lecture at the beginning of lab.”
Round three observations and interviews. Before I observed her class, I asked Karen how things were going. She told me that her Wednesday lab did not go well. She said the following:

My students ran into a part of the lab they didn’t understand well so they kept asking questions of me continuously—so much that I couldn’t concentrate to give them an answer. One particular student was very demanding with his questions. I had shadowed another TA before Wednesday’s lab and thought I understood it. So, I shadowed another TA afterward to get a better understanding.

Once class began, a student kept her preoccupied for the first part of the lab and this prevented her from catching a student who had no partner. She told me,

The group with the boy who at first had no lab partner was slow. They didn’t work well together. I had asked one of the students from a group of four to work with him instead. Eventually they got going, but they were reluctant to get started.

The boy who started out with no lab partner had special needs and tended to get angry easily. She had a problem when he found out the students from the last lab had left their data behind on the computer. She told me, “He wanted to keep the data, but I deleted it. This made him angry.”
One of the problems Karen had with the Friday lab was the occurrence of other TAs’ students attending her lab to make up for the lab they skipped earlier in the week. She said,

The unfortunate thing about being the last lab of the week is that students who have missed their labs from prior sections often pile into my class at the last minute to make up the lab. Luckily, I have been able to accommodate everyone at this point. If it gets any worse, that will not be possible.

Karen dealt with other difficulties as well. She wrote the following in her journal:

I have had a student tell me that his labs were turned in, but ‘went missing.’ I have had to make choices based on his performance through the semester. I also have students who are clearly participating in class, but will not pass because they have not turned in any assignments.

I have been somewhat unprepared for a few of my labs, because I have to keep up with my homework and other responsibilities. I did not enjoy teaching those labs, lesson learned.

In my third observation of her I noticed she explained the major topics being used in the lab: the right-hand rule and matrices. She also asked students questions about the materials the students were expected to learn. Karen had
changed the way she ran the classroom quite a bit from the first time I observed her, but she had difficulty obtaining the students’ attention when she started giving the mini-lecture overviews of the lab. She shared in her journal, “Students were not used to my short lectures so it was hard to get their attention to listen to my explanation of lab.” One of her students commented in his end-of-course evaluations on the lab summary she put on the board. He stated, “She comes in every week with improvements to her instruction—for example, putting lab summary on board today.” However, another student added, “For new labs, have the lab instructor do the lab with GSAs [graduate student assistants] before giving it to students.”

*Round three reflection journal analysis.* When conducting a content analysis of Karen’s third reflection journal, I found that she had self-related and task-related concerns (Table 4.29, p. 241). She had a routine level of self-reflection when she focused on two self-related concerns as evidenced by the following statements from her journal: “I enjoy helping my students do labs.. I think I have done a decent job filling my responsibilities this semester.” She reflected at a technical level when she shared one student’s claims that his labs were turned in but went missing (task) and other students’ lack of responsibility in turning in their work (task). Another example of her technical level of self-reflection was evidenced in the following passage from her journal: “I have seen that students aren’t always excited to be in my class.” Karen personally responded to situations,
but did not use the situation to change perspective. She reflected at a technical level when she discussed the following changes in her journal:

I had to make choices based on his performance through the semester.

I announced in class that such casual conversation is inappropriate.

I will establish more trust and a more consistent class schedule next semester.

I will type/write up my lesson plans before next semester, so that I only have to review each lab.

TCQ post-assessment. At the end of my study, Karen’s highest level of concern on the TCQ was moderately concerned, which she named a self-concern, maintaining class control (Table 4.30, p. 242). She was a little concerned with feeling adequate as a teacher (self), being accepted by professionals (self), lacking instructional materials (task), being under too much pressure (task), challenging unmotivated students (impact), and seeing that the students get what they need (impact). She was not concerned with any of the other items listed in the TCQ. At the end of the TCQ, she added:

I am often concerned that I may not be able to answer a question that a student asks (usually because I am currently unfamiliar with the labs). I sometimes have trouble understanding the student’s question.
Analysis and interpretation of Karen’s concerns. According to the results from the TCQ pre-assessment and post-assessment (Table 4.30, p. 242), Karen was at most moderately concerned—about maintaining class control (self) and whether or not students got what they needed (impact) on the pre-assessment and maintaining class control on the post-assessment. She increased by one level in concern about being accepted by professionals (self) and lacking instructional materials (task). She decreased by one level in concern for meeting the needs of different students (impact), guiding intellectual growth (impact), and seeing that the student gets what he/she needs (impact). None of Karen’s reflection journals or interviews gave me quite the same impression as that given by the information drawn from the TCQ.

When I looked at the content of her reflection journals and interviews, I found that she started and ended the study with self concerns and mostly thought about task concerns all throughout the study. Regarding these sources, Karen’s concerns were somewhat consistent with Fuller’s (1969) theory. If only considering Karen’s highest concern, a self concern, TCQ results support the outcome of her reflection journals and interviews. However, if the concerns she listed she was a little concerned about were included, then there would be a discrepancy between the outcome of the journals and interviews versus the TCQs.

Analysis and interpretation of Karen’s self-reflections. Karen stayed at the technical level of reflection because she was predominantly concerned about task-
related issues when she was writing her journals (Table 4.29, p. 241). She also performed at the routine level when she reflected during the GTA Seminar and the last round of the study. A technical inquiry that continued to stay with her throughout the process was the problem she had understanding students’ questions. Because her issue with understanding students’ questions was a long-term ongoing inquiry, I thought about the possibility of it being a transformative inquiry; however, on this particular issue Karen did not engage other resources (e.g. mentors, friends, texts, other GTAs) as one would in the transformative inquiry reflection level.

Her intent to change and prepare to understand her students’ questions was difficult to distinguish between routine change and technical change because she kept having the concern even though she posed solutions for it. I put it under technical change because she may have actually been responding to the situation; however, her response may have been inadequate to address the problem. I do not believe her response could be at any higher level because she did not seek out new insights or try to reframe her perspective as she had done for other problems (e.g., messing up the Wednesday lab and dealing with needy students). These results are consistent with theory because Karen, as a beginner, would normally reflect at these lower levels because she needed the proper scaffolding so that she can progress to the higher levels of self-reflection (Ward & McCotter, 2004).
Analysis of Karen's practices. Over the course of the three class periods I observed her, Karen became more formal in how she conducted lab (Table 4.31, p. 256). For the first observation, I noticed that Karen verbally went through the lab with the students without writing anything down or asking questions before they started their labs. Karen confirmed this observation by stating how she thought she should add an outline of lab on the board in the future so that students have a visual outline of the lab and won’t need her to keep telling them what to do.

For the second observation, Karen applied her suggested change of a mini-lecture, which involved talking through the lab while asking questions of the students and writing things on the board. By this time she received midterm feedback from her students, “be more prepared,” confirming what she had admitted to in the first round of the study. After having seen the second video-recording of her class, Karen observed that it had gone more smoothly than her round one video-recorded class. She attributed this outcome to her addition of the mini-lecture. Although she made progress in the formal presentation and flow of her labs by adding mini-lectures, Karen still admitted to having problems with preparation by the third round of the study. In their end-of-course evaluations, one student agreed that the lab summary on the board was an improvement and another added that Karen needed to practice her labs beforehand.
<table>
<thead>
<tr>
<th>Source of Information</th>
<th>Round 1</th>
<th>Round 2</th>
<th>Round 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angela Delp</td>
<td>Observation form has answered students’ questions; did not ask the students questions; did not use board or write anything down; one-on-one instruction was needed for confused students; certain students monopolized her time</td>
<td>Observation form has encouraged students to take on different roles in lab groups; some students required her help to get through the experiment; asked students key questions on the board; notified students of past mistakes; explained the formulas at the beginning of class</td>
<td>Observation form has explained right-hand rule and matrices before class started; asked students questions about right-hand rule, matrices, and formulas</td>
</tr>
<tr>
<td>Karen</td>
<td>Interview/Journal has students rely on instructor instead of preparing for lab; several lab groups were confused; fell behind in grading and not prepared; kept verbalizing what they needed to know</td>
<td>Interview/Journal has the small lecture seemed to help the students understand the lab to get through it more smoothly; required students to rotate roles so that they don’t monopolize certain roles</td>
<td>Interview/Journal has difficulty obtaining students’ attention; asked open-ended questions; have been somewhat unprepared for labs</td>
</tr>
<tr>
<td>Karen’s students</td>
<td>Midterm Evaluations has needs to be more prepared</td>
<td>End-of-course Evaluations has lab summary on board is an improvement; needs to practice and understand beforehand</td>
<td></td>
</tr>
</tbody>
</table>
Ray. Ray was a male in his early 20s from India that was working on his Master’s in Aerospace Engineering at Florida Tech. His native language was English. He was interested in a teaching assistant position so that he could obtain financial benefits, further his career goals, and learn new skills. He had no teaching experience prior to the GTA Seminar and would like to get a job in the aerospace industry once he has graduated. Rhys agreed to participate in my study because as he stated: “I anticipated learning particular traits that would help me become a better TA.”

Microteaching journal analysis. When conducting a content analysis of the microteaching journals that Ray completed during the seminar, I found that he had mostly self-related and task-related concerns (Table 4.32, p. 258). He reflected at a routine level when he focused on self concerns such as his clarity and volume of speech and confidence and comfort teaching. He had a technical level of self-reflection when he focused on his task-related concerns, which included his preparation, use of learning styles, time management, observance of students’ ability to answer questions, and maintaining students’ attention. His mistake in responding to a question with a wrong answer was a technical level of reflection. Finally, Ray reflected at a technical level when he decided to change how he would address the situation for next time he doesn’t know an answer.
Table 4.32

Ray’s Progression of Reflection Levels

<table>
<thead>
<tr>
<th>During Seminar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Routine Focus⁸</td>
</tr>
<tr>
<td>Technical Focusᵇ</td>
</tr>
<tr>
<td>Technical Inquiryᵈ</td>
</tr>
<tr>
<td>Technical Changeᵉ</td>
</tr>
</tbody>
</table>

**Round 1**

| Routine Focus⁸ | Doing good |
| Technical Focusᵇ | Took him time to get used to students and their levels; managing time; need to come up with a couple more examples; students understand what they’re taught because of responses to questions in class and good performance on homework |

**Round 2**

| Routine Focus⁸ | Getting easier to adapt to role as TA |
| Technical Focusᵇ | Good job presenting subject matter; actively engaging students; give examples; give real world situations; ask random students questions; gauges understanding with homework performance |
| Dialogic Focusᶜ | Looks for blank-faces on students so that he can help them clarify understanding and keep up |

**Round 3**

| Routine Focus⁸ | Gain skills; successfully managed class; strengthened his own knowledge; fulfilled responsibilities |
| Technical Focusᵇ | Made sure students understand material by using methods from seminar, creating assignments, and grading homework |
| Technical Inquiryᵈ | Some students don’t contribute during group projects |
| Technical Changeᵉ | Changed grading scheme to deal with group-work issues |

*Note.* ⁸Routine Focus = Focus is on self-centered concerns. ⁷Technical Focus = Focus is on specific teaching tasks. ⁹Dialogic Focus = Focus is on students in order to help them. ⁴Technical Inquiry = Questions are implied by frustration, subject stops asking questions after initial problem is addressed. ⁵Technical Change = Personally responds to situation, but does not use the situation to change perspective. See Ward and McCotter’s (2004) rubric for more detailed descriptions.
TCQ pre-assessment. At the start of the semester, Ray’s highest level of concern recorded in the TCQ was extremely concerned, which he noted an impact concern: meeting needs for different students (Table 4.33). He responded that he was very concerned about feeling adequate as a teacher (self), being accepted by professionals (self), challenging unmotivated students (impact), guiding intellectual growth (impact), and seeing that a student gets what he/she needs (impact). He was

Table 4.33

Ray’s Responses to Self, Task, and Impact Items of the Pre- and Post-assessment Teacher Concerns Questionnaire

<table>
<thead>
<tr>
<th>Self Concerns</th>
<th>Pre(^a)</th>
<th>Post(^b)</th>
<th>Diff(^c)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doing well in front of a superior</td>
<td>4</td>
<td>3</td>
<td>–1</td>
</tr>
<tr>
<td>Feeling adequate as a teacher</td>
<td>3</td>
<td>2</td>
<td>–1</td>
</tr>
<tr>
<td>Accepted by professionals</td>
<td>4</td>
<td>1</td>
<td>–3</td>
</tr>
<tr>
<td>Getting a favorable teaching evaluation</td>
<td>3</td>
<td>2</td>
<td>–1</td>
</tr>
<tr>
<td>Maintaining class control</td>
<td>3</td>
<td>2</td>
<td>–1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Task Concerns</th>
<th>Pre(^a)</th>
<th>Post(^b)</th>
<th>Diff(^c)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of instructional materials</td>
<td>3</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Under too much pressure</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Too many non-instructional duties</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Too many students each day</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Routine and inflexibility of teaching</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Impact Concerns</th>
<th>Pre(^a)</th>
<th>Post(^b)</th>
<th>Diff(^c)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meeting needs for different students</td>
<td>5</td>
<td>4</td>
<td>–1</td>
</tr>
<tr>
<td>Diagnosing learning problems</td>
<td>3</td>
<td>2</td>
<td>–1</td>
</tr>
<tr>
<td>Challenging unmotivated students</td>
<td>4</td>
<td>3</td>
<td>–1</td>
</tr>
<tr>
<td>Guiding intellectual growth</td>
<td>4</td>
<td>3</td>
<td>–1</td>
</tr>
<tr>
<td>Student gets what he/she needs</td>
<td>4</td>
<td>3</td>
<td>–1</td>
</tr>
</tbody>
</table>

Note. \(^a\)Pre = pre-assessment. \(^b\)Post = post-assessment. \(^c\)Diff = post-assessment score minus pre-assessment score. 1 = Not concerned, 2 = A little concerned, 3 = Moderately concerned, 4 = Very concerned, 5 = Extremely concerned.
moderately concerned about feeling adequate as a teacher (self), getting a favorable teaching evaluation (self), maintaining class control (self), and diagnosing learning problems (impact). He was not concerned about any of the other items mentioned in the TCQ and didn’t have any other concerns to add.

Setting. Ray is a Teaching Assistant for the General Engineering class. He has two sections of the class, which is a freshman-level class so there are many students who are undecided in their majors. In the class I observed, his Thursday afternoon class, it totaled 11 people. There were three U.S. females, one International female, and seven U.S. males. Of the U.S. females, one was White, one was Hispanic, and one was unknown. Of the U.S. males, four were White, two were Hispanic, and one was unknown. Ray’s main task during class time was to give lectures on new materials and guide the students through their application activities on the computers.

His computer-lab classroom is one-half of two classrooms that are conjoined. However, during his class the larger room is divided by an accordion-style room divider that closes off access to the other half of the classroom. The front of the room has an instructor desk with computer that is linked to the projection system, which projects the computer images on a retractable projection screen behind the instructor desk. The two whiteboards in the room are behind the retractable screen in the front of the room and on the wall that faces the room divider. There are four sets of four clustered-together desks where the students sit
facing each other. The Dell computers on the students’ and teacher’s desks are loaded with engineering software. The students tended to favor the front desks more than the ones in the back of the classroom; therefore, the room is filled more in the front. The classroom entrance, which remains locked at all times, is in the back of the room next to the room divider. If students exited the room during class time, they had to knock to get back inside the room.

Round one observations and interviews. In an interview before I observed Ray for the first time, I asked him what concerned him most regarding his class. He told me that he was concerned about student motivation because it’s been hard to keep the students’ interest when giving PowerPoint presentations. For my first observation of Ray, I noticed that he was wearing shorts—albeit dressy-looking shorts. He gave the students understandable explanations for the things that confused them on the PowerPoint, but he could have used a prop in one instance where the students could not visualize a 3-D image on the PowerPoint slide. “I meant to run down to the machine shop and borrow a tool to use as a prop for the next class, but I forgot. It definitely would have helped me explain what I was talking about.”

Round one reflection journal analysis. When conducting a content analysis of Ray’s round one reflection journal, I found that he had self-related and task-related concerns (Table 4.32, p. 258). He had a routine level of self-reflection when he focused on the following self concerns in his journal: “I’ve gotten quite
comfortable with my TA role. I feel like I’m doing a good job.” He had a technical level of self-reflection evidenced by task-related concerns in the following passages of his journal:

At first, it took me a little time to get used to my students and understand their learning curves.

I just think I need to come up with a couple of examples based on the questions I think the students will ask me during the lesson.

I know that my students have understood what I’m teaching them based on how they perform their homework assignments and through the responses they give me when I ask them questions during class.

It isn’t easy to balance my personal, teaching, and research responsibilities. As a result my social life has started to take a slight hit but as an individual I know my priorities.

Round two observations and interviews. The second time I observed Ray, I noticed an outsider student sat in the back of the room, worked quietly, and kept to herself. Ray informed me, “We allow other students to use the computers in our classrooms while class is in session only if they aren’t a distraction. It is necessary since most of them cannot afford to have these programs on their personal computers.” Ray didn’t mention any problems with this arrangement. Ray had another unique situation occur where I saw him sit in on Yashraj’s class. He told
me, “I observe his lectures for Pro-E stuff because he is more experienced with Pro-E.”

This time Ray’s class was more application of software and less PowerPoint presentation. This gave him more opportunity to walk around the classroom and interact with the students. As he progressed through the lesson, he noticed confused looks on his students face and asked them if they understood. Often, he would go to their desks and look at their computer screens when he could not get them back on track verbally. When he ran into issues of visibility with the whiteboard, Ray improvised by using the document camera. Although I thought he was very confident in his lesson, he believed otherwise. “I need to be more assertive. I need more enthusiasm in my voice. Initially, I was very lax with the presentation.”

Round two reflection journal analysis. When conducting a content analysis of Ray’s second reflection journal, I found that he had self-related, task-related, and impact-related concerns (Table 4.32, p. 258). He had a routine level of self-reflection when he focused on self concerns in the following excerpt from his journal: “The more I teach, the easier it is to adapt to the role of a TA.” He had a technical level of self-reflection when he focused on task-related concerns as evidenced by the following excerpts from his journal:

I can also gauge their understanding of the subject matter by their performance on the homework assignments.
I think I’m doing a good job with respect to presenting subject matter to my students and actively engaging them in the lesson.

I give them examples and educate them about the real world situations.

I usually ask random students questions.

Finally, he reflected at a dialogic level evidenced in the following passage from his journal regarding an impact concern: “If I observe blank expressions on an individual’s face, I go up to them and make sure they keep up with the rest of the class by clarifying their doubts.”

**Round three observations and interviews.** During my third observation, Ray’s computer malfunctioned so he had to teach without the use of it. He also was rushed because he had too much material to cover and, therefore, wasn’t able to walk around and look at the students’ computer screens as much as he normally did to check understanding. In this last observation of his class, the majority of Ray’s students did not turn in their assignments that were due that day. Ray was visibly annoyed with his students and told them they would all get a zero if they did not turn in their work by the end of the day. “I was annoyed with the students. They are not usually bad about turning in their work. This particular class had only 1 out of 12 students turn in the work that was due that day.” Group work was another problem that Ray had to deal with. “I used to grade reports holistically. Now I break up the work and grade group-work contributions. The students voluntarily
note their contributions in the report. Group-work has not been easy for me to deal with.”

Ray also had difficulty balancing his personal, teaching, and research responsibilities. Due to this difficulty in balancing roles, Ray has prioritized other responsibilities over his social life. “It isn’t easy to balance my personal, teaching, and research responsibilities. As a result, my social life has started to take a slight hit but as an individual I know my priorities.”

*Round three reflection journal analysis.* When conducting a content analysis of Ray’s third reflection journal, I found that he had self-related and task-related concerns (Table 4.32, p. 258). He reflected at a routine level as evidenced by the following statements taken from his journal focusing on self-related concerns:

The opportunity to teach a class and gain the skills that go along with doing so has been great.

To successfully manage a class and be able to educate all the individuals in each section has been very rewarding.

The TA responsibilities have also helped me strengthen my knowledge on certain software and processes.
Personally, I think I have completely fulfilled my responsibilities.

He reflected at a technical level as evidenced by his focus on task concerns in the following passage from his journal:

Personally, I think I have completely fulfilled my responsibilities as a TA with regards to teaching students the required material, making sure they understand the materials by using the different methods illustrated during the seminar, formulating assignments and grading homework in addition to helping the students outside of class.

He reflected at a technical level when he admitted, “The greatest challenges faced so far would have to be certain individuals who don’t contribute during group projects and expect the rest of the group to do all the work.” Ray reflected at the technical level when he decided to change his grading scheme to deal with group-work issues.

**TCQ post-assessment.** At the end of my study, Ray’s highest level of concern on the TCQ was very concerned, which he named an impact concern, meeting the needs for different students (Table 4.33, p. 259). He was moderately concerned with doing well in front of a superior (self), lacking instructional materials (task), challenging unmotivated students (impact), guiding intellectual growth (impact), and seeing that the students get what they need (impact). Ray was a little concerned with feeling adequate as a teacher (self), getting a favorable
teaching evaluation (self), maintaining class control (self), and diagnosing learning problems (impact). He was not concerned with any of the other items listed in the TCQ—most of those being task concerns.

*Analysis and interpretation of Ray’s concerns.* According to the results of the TCQ pre-assessment (Table 4.33, p. 259), Ray was most concerned about one impact concern (i.e., meeting needs for different students). On the post-assessment, he was still most concerned about meeting needs for different students. Ray did not increase in any of the concerns from the pre-assessment to the post-assessment. He decreased in concern by three levels from pre-assessment to post-assessment regarding being accepted by professionals (self).

According to the reflection journals, Ray had self and task concerns during the seminar and all three rounds of my study. He also had impact concerns on round two of my study. Neither the TCQ pre-assessment nor the TCQ post-assessment supported his concerns mentioned in his round one, two, and three journals. Likewise, the reflection journals did not support his highest TCQ concern—meeting the needs for different students could not be found in any of his reflection journals. Even the changes of concern from the TCQ pre-assessment to post-assessment could not be linked to changes that occurred from journal to journal. There are a number of things that could have occurred that created this outcome, such as the following: his concerns may have changed completely and rapidly from data point to data point, not all of his concerns were divulged in the
reflection journals, not all of his concerns were covered on the TCQ, and he lacked time to put much effort into submitting journals entries.

If basing the concerns analysis strictly on reflection journals and interviews, Ray’s concerns were somewhat consistent with Fuller’s (1969) theory because he mostly had self and task concerns. However, his TCQ results did not support this outcome so it is unclear as to whether Ray would have higher-level concerns had he enough time to process and reflect on his teaching or if the TCQ was a misrepresentation of what was actually happening.

**Analysis and interpretation of Ray’s self-reflections.** During the GTA Seminar, Ray reflected at routine and technical levels (Table 4.32, p. 258). Ray continued to reflect at routine and technical levels throughout my study. In the second round, he reflected at a dialogic level as well as the routine and technical levels. These results are consistent with theory because Ray, as a beginner, most often reflected at lower levels because he needed the proper scaffolding so that he can progress to the higher levels of self-reflection (Ward & McCotter, 2004).

**Analysis and interpretation of Ray’s practice.** I could not discern any patterns of change in Ray’s practice (Table 4.34, p. 269). However, I did observe how he closely followed the progress of his students by walking around the classroom to observe each student’s work, having them follow along with him, looking for confused looks, and having the students follow along with him.
### Table 4.34

**Ray’s Progression of Teaching Practice**

<table>
<thead>
<tr>
<th>Source of Information</th>
<th>Round 1</th>
<th>Round 2</th>
<th>Round 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Angela Delp</strong></td>
<td><strong>Observation form</strong></td>
<td><strong>Observation form</strong></td>
<td><strong>Observation form</strong></td>
</tr>
<tr>
<td></td>
<td>Clear writing; called on students; asked</td>
<td>Able to assess students’ understanding be</td>
<td>Helped students that were stuck; asked</td>
</tr>
<tr>
<td></td>
<td>students questions throughout; needed a</td>
<td>looks on their face; walks around to help</td>
<td>students to use software as he did;</td>
</tr>
<tr>
<td></td>
<td>couple of props for clarification</td>
<td>students who request it; asked students</td>
<td>constantly helping throughout lab; lesson</td>
</tr>
<tr>
<td></td>
<td></td>
<td>questions</td>
<td>was a little rushed</td>
</tr>
<tr>
<td><strong>Ray</strong></td>
<td><strong>Interview/Journal</strong></td>
<td><strong>Interview/Journal</strong></td>
<td><strong>Interview/Journal</strong></td>
</tr>
<tr>
<td></td>
<td>Used lots of hand motions; lacked</td>
<td>Need to be more assertive; need more</td>
<td>Class was extremely rushed; able to cover</td>
</tr>
<tr>
<td></td>
<td>confidence</td>
<td>enthusiastic; was very lax with the</td>
<td>everything they needed to know</td>
</tr>
<tr>
<td></td>
<td></td>
<td>presentation; interact with students by</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>asking random students questions; give them</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>examples and educate them about real</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>world situations; observe blank expressions;</td>
<td></td>
</tr>
<tr>
<td><strong>Ray’s students</strong></td>
<td><strong>Midterm Evaluations</strong></td>
<td><strong>End-of-course Evaluations</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Not available</td>
<td>Not available</td>
<td></td>
</tr>
</tbody>
</table>

**Gargi.** Gargi was a female in her early 20s from India that was working on her Master’s in Molecular Biology. English was her second language. She was interested in a teaching assistant position so that she could learn new skills, further her career goals, and improve her CV. She had no prior experience with teaching and would like to go to a PhD program after finishing her degree at Florida Tech. Gargi signed up for my study for feedback as evidenced by the following statement
taken from the TCQ post-assessment, “I’ve always believed that I will be a good teacher and enjoy giving presentations. However, I wanted actual feedback on my teaching skills. This is why I wanted to sign up for the study.”

*Microteaching journal analysis.* When conducting a content analysis of the microteaching journals that Gargi completed during the seminar, I found that she had mostly self-related and task-related concerns (Table 4.35, p. 271). She reflected at a routine level as evidenced in her focus on self concerns in the following excerpt from her journal: “I was happy that I finished on time and was absolutely comfortable teaching my topic. I did not feel nervous. I reworded important concepts or definitions.” She had a technical level of self-reflection as evidenced from the following statements taken from her journal where she focused on task-related concerns: “I believe that I prepared my presentation quite well. I believe the students learned because they asked relevant questions and answered the assessments correctly.” Gargi had a technical level of self-reflection also when she had an inquiry that resulted in a change as evidenced in her following journal passage:

> At one time, I received no nodding or gestures from my audience and it made me feel that they were not following me. So I stopped and asked them a very simple question and waited for them to answer. This way I could focus their attention again.
Table 4.35

Gargi’s Progression of Reflection Levels

<table>
<thead>
<tr>
<th>During Seminar</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Routine Focus</strong>&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Finishing lesson on time; reworded concepts/definitions; work on timing; practice; comfortable</td>
</tr>
<tr>
<td><strong>Technical Focus</strong>&lt;sup&gt;b&lt;/sup&gt;</td>
<td>Students learned because they asked relevant questions and answered questions correctly; preparation</td>
</tr>
<tr>
<td><strong>Technical Inquiry</strong>&lt;sup&gt;c&lt;/sup&gt;</td>
<td>No nodding from audience means they were not following me</td>
</tr>
<tr>
<td><strong>Technical Change</strong>&lt;sup&gt;d&lt;/sup&gt;</td>
<td>Stopped and asked students a question to focus their attention again</td>
</tr>
</tbody>
</table>

**Round 1**

| Routine Focus<sup>a</sup> | Worried I come across as strict; teaching is enjoyable; time commitment; I am good as a TA |
| Technical Focus<sup>b</sup> | Punctual with grading; encourage questions; responses to questions tell me they understand; engaging students |
| Technical Inquiry<sup>c</sup> | Misbehaving student making rude comments in class |
| Technical Change<sup>d</sup> | Will speak to student about her actions |

**Round 2**

| Routine Focus<sup>a</sup> | Feel better teaching after having talked to misbehaving student |
| Technical Focus<sup>b</sup> | Demand appropriate behavior from students |

**Round 3**

| Routine Focus<sup>a</sup> | Feels teaching has been useful |
| Dialogic Focus<sup>e</sup> | Biggest challenge is to make sure every student gets his/her needs met; difficult to make class challenging and not overwhelming |

*Note.* <sup>a</sup> Routine Focus = Focus is on self-centered concerns.  <sup>b</sup> Technical Focus = Focus is on specific teaching tasks.  <sup>c</sup> Technical Inquiry = Questions are implied by frustration, subject stops asking questions after initial problem is addressed.  <sup>d</sup> Technical Change = Personally responds to situation, but does not use the situation to change perspective.  <sup>e</sup> Dialogic Focus = Focus is on students in order to help them. See Ward and McCotter’s (2004) rubric for more detailed descriptions.

**TCQ pre-assessment.** At the start of the semester, Gargi’s highest level of concern recorded in the TCQ was extremely concerned (Table 4.36, p. 272), which she noted a self concern (i.e., being accepted by professionals) and an impact concern (i.e., seeing that the student gets what he/she needs). She responded that he was very concerned about feeling adequate as a teacher (self), getting a favorable
teaching evaluation (self), maintaining class control (self), lacking instructional materials (task), having too many students each day (task), dealing with the routine and inflexibility of teaching (task), meeting needs for different students (impact), challenging unmotivated students (impact), and guiding intellectual growth (impact). She was moderately concerned about doing well in front of a superior (self) and being under too much pressure (task). Gargi was a little concerned about
having too many non-instructional duties (task). She was not concerned about
diagnosing learning problems and did not have any other concerns to add.

Setting. She was a teaching assistant for two Genetics labs—both on
Thursday and one right after the other. I observed the 11am class—her first class of
the day. The 11am class had 20 students: 10 U.S. females, one International female,
seven U.S. males, and two International males. Of the U.S. females, six were
White, one was Black, and three were unknown. Of the U.S. males, five were
White, one was Hispanic, and one was multiracial. Most of the students were
sophomores; however, there were a few seniors. Gargi’s main task during class
time was to guide the students through their lab work and answer their questions
when necessary.

The laboratory classroom Gargi worked in had a teacher’s lab table in the
front of the room with a white board just behind it. Laboratory cabinets and
equipment surrounded the classroom around all four walls. Students were seated
throughout the room in lab groups at their own lab tables. The students’ lab tables
are equipped with water, gas, and electrical plugs. There were six lab tables for
students; all were free-standing in the middle of the classroom. Each table was
perpendicular to the teacher’s desk and set up to have four students. The classroom
entrance was in the back of the room.
Round one observations and interviews. In an interview before I observed Gargi for the first time, I asked her how things were going with her class. She told me the following:

Some students in my labs are very smart and get bored easily. They want to rush through the lab. I sometimes have to slow them down and that irritates them. I've had to do this because some elements of the lab require that all the students do them together, so the faster students have to wait on the slower students. I would like to give attention to everyone with certain delicate lab techniques; however, there are so many students to attend to I cannot get to everyone. I feel bad about that, but I know I'm doing all I can.

I then asked her if she had any other concerns. She responded with the following:

On midterm evaluations, the students complained that my quizzes were too difficult. So, I talked to my supervisor about them. My supervisor supported me in how I constructed my quizzes. My students were able to pass the quizzes, but they told me they had to do a lot of work studying to do so.

Gargi then offered up another concern she had resulting from the midterm evaluations:

Another concern I have from the midterm evaluations was that one student accused me of being partial. Since they did not give a specific reference to what they were talking about, it is difficult for me to know what exactly happened. However, I do not feel I have been treating any of the students
differently. I will ask them to talk to me more about their grades in the future.

I then observed Gargi teach on the importance of PCR—Polymerase Chain Reaction. She was very enthusiastic in her instruction and explained things with reference to forensic science. All throughout her preparatory lesson, Gargi asked questions about PCR. She was very animated and pointed to whatever she was talking about that was written on the board. Although English wasn't her first language she was clear and well-spoken. Only on occasion when she explained things impromptu did she use the verbal pause, “uh.”

When I asked Gargi about how she felt about the class both she and I had observed, she responded with the following:

I push myself to make an accent that Americans understand. I feel like I should push myself more to lessen my Indian accent. My main concern when teaching is the way students behave (particularly the tall, blond girl in the class). This student constantly complains during lab—asking when the lab will be over so she can leave. I ended up letting the students of that lab leave as soon as the PCR machine was loaded. I did not let my students go after he PCR machine was loaded in my other section; they went over the data they collected in that class.
I encouraged Gargi not to ignore the problem, but to address it. I also recommended that she see her supervisor about this issue if she isn't sure how she would like to handle it. Gargi responded to my feedback with the following:

I will talk to my supervisor about this issue the next time I see him. The problem student is getting to be a detriment to the rest of the class as they do not get the benefit of a full class period of reviewing the material. I know that not all of the students feel the same as this problem student because quite a few of them stay after everyone has left to discuss the lab. I cannot allow the one student to control when class ends. Other than this one problem, the class is good.

**Round one reflection journal analysis.** When conducting a content analysis of Gargi’s round one reflection journal, I found that she had self-related and task-related concerns (Table 4.35, p. 271). She had a routine level of self-reflection when she focused on the following in her journal:

I was worried I would come across as a strict TA, because I myself am very disciplined about my tasks. But then later, I started to ease out and the experience became more enjoyable.

I think I've done a good job adapting myself. I sometimes feel that it's a lot of time commitment, but then, that's the job.
Gargi reflected at a technical level when she focused on the following task-related concerns in her journal:

I always try to get everything organized before class, I give back quizzes the very next week and return notebooks the following day, if I collect them.

I make sure I teach students the concepts behind their experiments. I encourage them to ask questions and their responses tell me that they have understood.

I sometimes feel that I don’t do a very good job at engaging all students into what I teach. Sometimes I notice that 1-2 students are not listening but I don’t point them out because I don’t want to disturb the rest of the class.

Gargi had a technical level of self-reflection also when she had an inquiry that resulted in a change as evidenced in her following journal passage:

I am particularly concerned about a student in my class who has been misbehaving. She has always behaved as if the lab was too simple a task for her and she always wants to leave the lab as early as possible. This lab she cut through what I was teaching and passed a rude comment in front of the whole class. Her behavior was inappropriate. Since I didn’t say anything to her, she later said even rude things when I was trying to help her group with
the experiment. I ignored her this time, but I will have to speak to her about her actions. I now feel that I am very lenient and have to be strict in my classes.

**Round two observations and interviews.** The second time I observed Gargi, she was instructing her students to make gels. She called on different students to perform different lab work in production of the gels. Gargi gave a short presentation on how to calculate solutions and what the percentage means when dealing with solutions. Gargi wrote clearly on the board, dressed appropriately (e.g., labcoat), faced the class when she spoke to them, and asked class to come closer when she needed to speak to them about the equipment.

I asked her what she thought regarding her observations of this class. Gargi responded:

The products the students used to make gels were different from what is normally used, so they experienced the gels sticking to the sides of the well and tearing. One problem could have been that the students were not patient to give the gels enough time to set. These gels are fragile, low concentration gels. The type of DNA the students are running requires low concentration gels. Another problem with tearing gels arises from improper loading. I recommended that they practice loading dyes because the technique is so important.
Given her difficulty with her students’ behavior, I thought it would be pertinent to know whether they are motivated to actually learn the materials. I asked Gargi her take on this. She responded, “Many students in the class are Marine Biologists so they may not be as motivated to learn the calculations because they are not likely to use them again.” When I observed Gargi’s class, I noticed the girl that had been so misbehaved before wasn’t as much of a problem. I asked Gargi if she had taken some sort of action. Gargi responded with the following:

I talked to my supervisor and he told me to talk to her outside of class. I did and she apologized for her poor behavior. She explained that she had been stressed out with the amount of work she had to do on top of her athletic responsibilities. She promised not to let it happen again.

Round two reflection journal analysis. When conducting a content analysis of Gargi’s round two reflection journal, I found that she had self and task concerns (Table 4.3, p. 271). She had a routine level of self-reflection when she focused on a self concern in the following statement extracted from her journal: “I feel better about teaching now.” She had a technical level of self-reflection when she focused on a task-related concern as evidenced by the following excerpt from her journal:

I have learnt to demand appropriate behavior from students. I spoke to the misbehaving student in my class and I found out that she was going through some rough times and so she was behaving in this manner. Nevertheless, I reminded her that she was an athlete and was expected to understand
teamwork better than anybody in the class. She was already very embarrassed for her behavior. After our little talk, her behavior in the class improved considerably. She willingly waited for everybody to finish and worked with everybody as a team. Whether she did this out of remorse or just to improve her class participation grade, it did have an overall effect on the whole class. Everybody was more relaxed, and so was I.

**Round three observations and interviews.** During my third observation of Gargi, she was instructing a lab where the students were tasked with forming plans for analysis to catch a fictional criminal. Once they formed these plans, they were supposed to email them with the name of their chosen enzyme to Gargi for approval. After letting the students know the objectives of the lab, she demonstrated a software program over the projector and walked around the class answering questions one-on-one. The lab as a whole seemed a little disorganized because it was not clear to me when the students would receive their suspect DNA and what they were supposed to do for homework (because they were already creating and getting approvals for their plans during class).

I asked Gargi what she thought of the third class I recorded. She responded with the following:

I felt that my class went pretty well, although it would have been nice if they had computers in the lab. I believe it could have been better if the students were able to follow along with my explanations on their own.
computers. However, it is difficult to get the computer lab and it is difficult to have students bring their own laptops. So, I must make do with what I have.

The students had to email their plans to me and I found that many of them chose the wrong enzyme so I had to explain the correct enzyme the first thing during the next lab. It was a difficult format of lab to work with, but the DNA was not available that week and that’s why they had to wait until the next week to work with it.

*Round three reflection journal analysis.* When conducting a content analysis of Gargi’s third reflection journal, I found that she had self-related and task-related concerns (Table 4.35, p. 271). She reflected at a routine level as evidenced by the following statement taken from her journal focusing on a self-related concern:

> When I had my last lab for the semester, some of my students stayed back for a little chat. They told me that they had enjoyed the lab and it had been ‘real.’ This was the best part of teaching for me. It made me feel like I have done something useful. I’m looking forward to teaching next semester.

She reflected at a dialogic level as evidenced by her focus on an impact concern in the following passage from her journal:
This semester I felt that the biggest challenge was to make sure that every student was getting what they needed to get out of this class. I had mostly sophomores in my class and some of them were seniors. I found it tough to maintain the class at a level so that all students found the class to be challenging, yet not overwhelming. I believe I still have to learn to do this better.

**TCQ post-assessment.** At the end of my study, Gargi’s highest level of concern on the TCQ was extremely concerned, which she named a self concern, being accepted by professionals (Table 4.36, p. 272). She was very concerned with feeling adequate as a teacher (self), getting a favorable teaching evaluation (self), maintaining class control (self), lacking instructional materials (task), meeting needs for different students (impact), challenging unmotivated students (impact), guiding intellectual growth (impact), and seeing that the students get what they need (impact). Gargi was moderately concerned with being under too much pressure (task), having too many non-instructional duties (task), having too many students each day (task), and dealing with the routine and inflexibility of teaching (task). She was a little concerned about doing well in front of a superior (self) and diagnosing learning problems (task).

**Analysis and interpretation of Gargi’s concerns.** According to the results of the TCQ pre-assessment (Table 4.36, p. 272), Gargi was most concerned about a self concern (i.e., being accepted by professionals) and an impact concern (i.e.,
seeing that the student gets what he/she needs). On the post-assessment, she was still most concerned about being accepted by professionals. Gargi increased by one level in concern from the pre-assessment to the post-assessment regarding having too many instructional duties and diagnosing learning problems. She decreased in concern by one level from pre-assessment to post-assessment regarding doing well in front of a superior (self), having too many students each day (task), dealing with the routine and inflexibility of teaching (task), and seeing that the student gets what he/she needs (impact).

According to the reflection journals, Gargi had self and task concerns during the seminar and all throughout the study as well as an impact concern in round three. Neither the TCQ pre-assessment nor the TCQ post-assessment supported her concerns mentioned in her round one and two. The only agreement between instruments occurred between the TCQ pre-assessment and round three journal when Gargi stated her biggest concern was making sure that every student got what he/she needed. Further, the reflection journals did not support her highest TCQ concern—being accepted by professionals could not be found in any of her reflection journals. Even the changes of concern from the TCQ pre-assessment to post-assessment could not be linked to changes that occurred from journal to journal. There are a number of things that could have occurred that created this outcome, such as the following: her concerns may have changed completely and rapidly from data point to data point, not all of her concerns were shared in the
reflection journals, not all of her concerns were covered on the TCQ, and she lacked time to put much effort into submitting journals entries.

If basing the concerns analysis strictly on reflection journals and interviews, Gargi’s concerns were somewhat consistent with Fuller’s (1969) theory because she mostly had self and task concerns. However, her TCQ results did not support this outcome so it is unclear as to whether Gargi would have higher-level concerns had she enough time to process and reflect on her teaching or if the TCQ was a misrepresentation of what was actually happening.

Analysis of Gargi’s self-reflections. During the GTA Seminar, Gargi reflected at routine and technical levels (Table 4.35, p. 271). Gargi continued to reflect at routine and technical levels throughout my study. These results are consistent with theory because Gargi, as a beginner-GTA, most often reflected at lower levels because she needed the proper scaffolding so that she can progress to the higher levels of self-reflection (Ward & McCotter, 2004).

Analysis of Gargi’s practice. I could not discern any patterns in Gargi’s practice (Table 4.37, p. 285). However, I did observe how the student Gargi had problems with had been less rude in class for rounds two and three. I do not count this change as a change in Gargi’s teaching practice because Gargi dealt with this by talking to the student one-on-one outside of class instead of modifying her teaching practice.
### Table 4.37

*Gargi’s Progression of Teaching Practice*

<table>
<thead>
<tr>
<th>Source of Information</th>
<th>Round 1</th>
<th>Round 2</th>
<th>Round 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angela Delp</td>
<td>Observation form</td>
<td>Observation form</td>
<td>Observation form</td>
</tr>
<tr>
<td></td>
<td>Explained why PCR is important; asked students questions throughout; very enthusiastic; referenced forensic science; very animated; well spoken</td>
<td>Clear board-work; called on students to perform different lab work; ask students questions; clear and understandable speech</td>
<td>Seemed a little disorganized; asked students to form plans and approved them; walked around answering questions one-on-one; loud and clear voice but a little fast</td>
</tr>
<tr>
<td>Gargi</td>
<td>Interview/Journal</td>
<td>Interview/Journal</td>
<td>Interview/Journal</td>
</tr>
<tr>
<td></td>
<td>Let students out of lab as soon as PCR machine was loaded; don’t do a very good job at engaging students; attempting to lessen Indian accent</td>
<td>Students had problems with gels; spoke with student about poor behavior</td>
<td>DNA did not arrive on time and computer lab is difficult to book so had to make do without them; found it difficult to maintain class at a level so that all students found the class to be challenging but not overwhelming</td>
</tr>
<tr>
<td>Gargi’s students</td>
<td>Midterm Evaluations</td>
<td>End-of-course Evaluations</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Not available</td>
<td>Not available</td>
<td></td>
</tr>
</tbody>
</table>

**Kalpesh.** Kalpesh was a male in his early 20s from India that was working on his Master’s in Mathematics—Operations Research. English was his second language. He was interested in a teaching assistant position so that he could further his career goals, improve his CV, and obtain financial benefits. He had teaching experience prior to the GTA Seminar and would like to continue to a PhD program.
once he has finished his degree at Florida Tech. At the end of my study Kalpesh told me:

I volunteered for this study mainly to be able to watch video tapes of me teaching as I feel it would be a great way to get feedback and I have been pleased with the outcome. Also, I expected some feedback from you and have been very pleased even in this aspect.

Microteaching journal analysis. When conducting a content analysis of the microteaching journals that Kalpesh completed during the seminar, I found that he had mostly self-related and task-related concerns (Table 4.38, p. 287). He reflected at a routine level as evidenced in his focus on self concerns in the following excerpts from his journal:

I also think that I did not commit any errors as far as the subject matter was concerned.

I did not organize my thoughts in the best way possible.

I did not notice that one of the students had his hand raised in order to ask a doubt.

I felt comfortable with my body language but felt that I could have made better use of the board, as I did not organize my writing on the board in the best way possible.
This lesson was surely better than my first micro teaching lesson. I was much more composed and organized and could focus on the finer details a lot better.

I might still need to work on my handwriting on the board but I guess that would come with practice as I have never written on a board before.

He had a technical level of self-reflection as evidenced from the following statements taken from his journal where he focused on task-related concerns:

<table>
<thead>
<tr>
<th>Round 1</th>
<th>Technical Focus b</th>
<th>Routine Focus a</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical Focus b</td>
<td>Balance personal, teaching, and other responsibilities</td>
<td>Considering full-time teaching career</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Round 2</th>
<th>Technical Focus b</th>
<th>Routine Focus a</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical Focus b</td>
<td></td>
<td>Comfortable and relaxed; able to understand which students need help; better understanding of each student’s needs</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Round 3</th>
<th>Technical Focus b</th>
<th>Routine Focus a</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical Focus b</td>
<td></td>
<td>Satisfying to teach</td>
</tr>
</tbody>
</table>

Note. a Routine Focus = Focus is on self-centered concerns. b Technical Focus = Focus is on specific teaching tasks. c Technical Inquiry = Questions are implied by frustration, subject stops asking questions after initial problem is addressed. d Technical Change = Personally responds to situation, but does not use the situation to change perspective. e Transformative Focus = Focus is on personal involvement with fundamental, pedagogical, ethical, moral, cultural, or historical concerns and how these impact students and others. See Ward and McCotter’s (2004) rubric for more detailed descriptions.
I was able to talk about all the points which I had prepared for.

I was able to get good responses for all of my assessment questions.

I think I was able to achieve the objective of the class.

I was also able to interact more with the students and was able to answer most of the questions.

Kalpesh had a technical level of self-reflection also when he had an inquiry that resulted in a change as evidenced in his following journal excerpt: “One of the mistakes which I did make was that I used a notation which was a little misleading and will avoid such mistakes in the future.”

**TCQ pre-assessment.** At the start of the semester, Kalpesh’s highest level of concern recorded in the TCQ was extremely concerned (Table 4.39, p. 289), which he noted a self concern (i.e., getting a favorable teaching evaluation). He responded that he was very concerned about being accepted by professionals (self), challenging unmotivated students (impact), and seeing that the student gets what he/she needs (impact). He was moderately concerned about maintaining class control (self), being under too much pressure (task), having too many non-instructional duties (task), dealing with the routine and inflexibility of teaching
Kalpesh’s Responses to Self, Task, and Impact Items of the Pre- and Post-assessment Teacher Concerns Questionnaire

<table>
<thead>
<tr>
<th>Self Concerns</th>
<th>Pre</th>
<th>Post</th>
<th>Diff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doing well in front of a superior</td>
<td>1</td>
<td>3</td>
<td>+2</td>
</tr>
<tr>
<td>Feeling adequate as a teacher</td>
<td>2</td>
<td>3</td>
<td>+1</td>
</tr>
<tr>
<td>Accepted by professionals</td>
<td>4</td>
<td>2</td>
<td>–2</td>
</tr>
<tr>
<td>Getting a favorable teaching evaluation</td>
<td>5</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Maintaining class control</td>
<td>3</td>
<td>2</td>
<td>–1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Task Concerns</th>
<th>Pre</th>
<th>Post</th>
<th>Diff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of instructional materials</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Under too much pressure</td>
<td>3</td>
<td>2</td>
<td>–1</td>
</tr>
<tr>
<td>Too many non-instructional duties</td>
<td>3</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Too many students each day</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Routine and inflexibility of teaching</td>
<td>3</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Impact Concerns</th>
<th>Pre</th>
<th>Post</th>
<th>Diff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meeting needs for different students</td>
<td>1</td>
<td>5</td>
<td>+4</td>
</tr>
<tr>
<td>Diagnosing learning problems</td>
<td>1</td>
<td>3</td>
<td>+2</td>
</tr>
<tr>
<td>Challenging unmotivated students</td>
<td>4</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Guiding intellectual growth</td>
<td>3</td>
<td>5</td>
<td>+2</td>
</tr>
<tr>
<td>Student gets what he/she needs</td>
<td>4</td>
<td>5</td>
<td>+1</td>
</tr>
</tbody>
</table>


(task), and guiding intellectual growth (impact). Kalpesh was a little concerned about feeling inadequate as a teacher (self) and lacking instructional materials (task). He was not concerned about any of the other items listed on the TCQ. At the end of the TCQ, Kalpesh added:

I am also concerned that since this is my first time as an instructor, I might not be able to maintain the same control of the class as a more experienced
instructor might. Also I sometimes worry that being a grad student myself, my knowledge might not be sufficient to answer all the questions which any student might pose.

Setting. He was a teaching assistant for one Precalculus and one Calculus II lab. I only observed his Monday morning Calculus II lab. He had 14 total students in his classroom: seven U.S. females, 10 U.S. males, four International males, and one International female. Of the U.S. females, four were White, one was Black, one was multiracial, and one was unknown. Of the U.S. males, seven were White, one was Asian, one was Black, and one was unknown. Many of these students were freshmen. Kalpesh’s main duty during class time was to work out the problems he was given by his superior on the whiteboard for his students and answer any questions the students may have as needed.

Kalpesh’s classroom could hold up to 55 people; however, his students that attended class filled about 30 percent of the room’s capacity. Students preferred to sit within the first three rows of student chair-desks in the classroom. Kalpesh was furnished with an instructor workstation that provided him access to a computer, projector, and document camera. This access to technology was only used in the first 5 minutes of class to take attendance and possibly check email. Otherwise Kalpesh’s main aid for teaching was the whiteboard in the front of the room. The classroom entrances were located in the front on either side of the whiteboard. One of these entrances is directly behind the instructor workstation.
Round one observations and interviews. In an interview before I observed Kalpesh for the first time, I asked him how things were going with his class. He told me the following:

I currently feel that I am good as a teacher. I am now comfortable with teaching, although I initially had some difficulty with it. My goal is to have more interaction with the students in my class. Right now only 15-20% of the students seem interested in the subject at hand. I have talked to professors and they have told me that this is normal behavior for the students in Calculus 2.

I then asked him what the requirements were for his class. He responded with the following:

They have quizzes every Wednesday and tests monthly (on Wednesday in place of a quiz). So, I do not do any instruction on Wednesdays. My class correlates with the lecture section a professor gives on Tuesdays and Thursdays. The professor goes over the theory while I go over the application. I try to enhance classroom instruction by making sure the students understand the background behind each step I provide (I often ask the students to give me the background in order to get them to interact in class). I also try to help them realize the important points of the material and why it is important—so that they know what to expect for the test and they may obtain more in-depth knowledge. I know my students are not motivated because they do not look at me while I am asking them questions (even the most trivial questions).
My lower level class, Pre-calculus, has a higher percentage of interested students (at least 50%). Pre-calculus also has more freedom since the students are provided the problems before they enter the class whereas in Calculus II students first see the problems worksheet when they enter my class. In Calculus II I have to go through the entire worksheet of which the students have never seen before—which limits my time and ability to get students’ input or interaction about the problem.

I then observed Kalpesh work the assigned Calculus II problems. His board work was clear and organized, but the board itself was dirty so it was difficult to see sometimes. Kalpesh’s students were very quiet and passive, but still managed to participate in class. Different students answered Kalpesh’s questions, however, I did notice one dominant student in the front of the classroom. Kalpesh seemed to be comfortable with speaking in the classroom. He was very formal and professional and always faced the class to speak. On rare occasions he would speak a little fast or write on the board a little small.

When I asked Kalpesh about how he felt about the class both he had observed, he responded with the following: “I gained confidence from watching the video. I noticed more involvement in the lesson in comparison to prior lessons; however, I am not sure if that was because a camera was in the classroom.”

Round one reflection journal analysis. When conducting a content analysis of Kalpesh’s round one reflection journal, I found that he had self-related and task-related concerns (Table 4.38, p. 287). He had a routine level of self-reflection when
he focused on the following in his journal: “I feel I have adapted very well to the role of a TA. I love my primary role as a teacher and feel a real sense of purpose. I have even considered a full-time teaching career in the future.” Kalpesh reflected at a technical level when he focused on the following task-related concern in his journal: “I am yet to figure out how to properly manage and balance personal, teaching, and other responsibilities.”

*Round two observations and interviews.* The second time I observed Kalpesh, he was teaching convergence and divergence. This time his students were very quiet—three of them were sleeping in class. Kalpesh tried to get their input on problems, but often the same 5-6 students responded. One student’s name was called to answer a question. I’m not sure if he/she responded. Wait-time was applied to the general audience, but they seemed very afraid or unwilling to respond. Kalpesh was very well-spoken although he spoke a little fast at times. He wore a T-shirt and jeans to class, so he was somewhat informal in appearance.

I asked Kalpesh what he thought regarding his observations of this class. Kalpesh responded:

I thought the class was good. There wasn’t too much that was different from the first time. I had covered something before the professor this time so that the students were learning the material (convergence and divergence) for the first time. That may have been why they were reluctant to pay attention or respond to questions in class. As for the lack of responsiveness of my
students, I believe that is normal across the board. That’s what all TAs experience—at least the ones I know.

Round two reflection journal analysis. When conducting a content analysis of Kalpesh’s round two reflection journal, I found that he had self concerns (Table 4.38, p. 287). He had a routine level of self-reflection when he focused on self concerns in the following passage extracted from his journal: “As a TA, I now feel that I have a better understanding of each of my student’s individual needs. I feel a lot more comfortable and relaxed when I teach and also I am able to understand which of my students needs the extra help.”

Round three observations and interviews. During my third observation of Kalpesh, he first outlined the different points of discussion for that class on the board. Then he fully demonstrated each condition that has to be made when there is absolute convergence versus conditional convergence. Kalpesh was very cognizant of facing his class and asked his students questions while working the problems throughout the lesson. Kalpesh had clear, understandable speech without any verbal pauses. He was honest when he made a mistake—admitting to it fully with a brief smile. Kalpesh’s board work was still small on occasion, but for the most part legible.

I asked Kalpesh what he thought of the third class I recorded. He responded with the following:
I compared the three videos and saw that I became more informal with the students with each video. I got to know my students better and became more informal. I went from being very procedural to giving more examples and being open to more ideas and ways of thinking. The students don’t always have to do things my way. They can do things their own way as long as they have rational explanation for whatever they do.

*Round three reflection journal analysis.* When conducting a content analysis of Kalpesh’s round three reflection journal, I found that he had self-related and task-related concerns (Table 4.38, p. 287). He reflected at a routine level as evidenced by the following statement taken from his journal focusing on a self-related concern: “It has been very satisfying to teach certain students and it actually gave me a sense of doing meaningful work.” He reflected at a technical level as evidenced by the following passage extracted from his journal that focuses on a task-related concern: “The biggest challenge I faced as a TA was learning to manage my time as a student and balance it with work as a TA.”

*TCQ post-assessment.* At the end of my study, Kalpesh’s highest level of concern on the TCQ was extremely concerned (Table 4.39, p. 289), which he named a self concern (i.e., getting a favorable teaching evaluation) and three impact concerns (i.e., meeting needs for different students, guiding intellectual growth, and seeing that the student gets what he/she needs). He was very concerned with challenging unmotivated students (impact). Kalpesh was moderately concerned
about doing well in front of a superior (self), feeling adequate as a teacher (self), having too many non-instructional duties (task), dealing with the routine and inflexibility of teaching (task), and diagnosing learning problems (impact). Kalpesh was a little concerned with being accepted by professionals (self), maintaining class control (self), lacking instructional materials (task), and being under too much pressure (task). He was not concerned about any of the other items listed on the TCQ.

Analysis and interpretation of Kalpesh’s concerns. According to the results of the TCQ pre-assessment (Table 4.39, p. 289), Kalpesh was most concerned about a self concern (i.e., getting a favorable teaching evaluation). On the post-assessment, he was still extremely concerned about getting a favorable teaching evaluation, but also meeting needs for different students (impact), guiding intellectual growth (impact), and seeing that the student gets what he/she needs (impact). Kalpesh increased in concern by two levels from the pre-assessment to the post-assessment regarding doing well in front of a superior (self), diagnosing learning problems (impact), and guiding intellectual growth (impact). He decreased in concern by two levels from pre-assessment to post-assessment regarding being accepted by professionals (self).

According to the reflection journals, Kalpesh had self and task concerns during the seminar as well as throughout all three rounds of the study. The concerns Kalpesh rated high on the TCQ pre-assessment and post-assessment do not match
up with his concerns discussed in the reflection journals. The changes in concern from pre-assessment to post-assessment were also not supported by the reflection journals. These discrepancies may have occurred due to a cadre of factors: rapid change of concerns, instrument error, poor representation of Kalpesh’s concerns on the TCQ, and lack of time on Kalpesh’s part for serious contemplation over the TCQ. For instance, if Kalpesh was in a hurry to finish his work for my study, then he may have completed the assignments without having thought them through properly.

If basing the concerns analysis strictly on reflection journals and interviews, Kalpesh’s concerns were somewhat consistent with Fuller’s (1969) theory because he mostly had self and task concerns. However, his TCQ results did not support this outcome so it is unclear as to whether Kalpesh would have higher-level concerns had he enough time to process and reflect on his teaching or if the TCQ was a misrepresentation of what was actually happening.

*Analysis and interpretation of Kalpesh’s self-reflections.* During the GTA Seminar, Kalpesh reflected at routine and technical levels (Table 4.38, p. 287). He continued to reflect at routine and technical levels in round one and three of my study. During round two he only reflected at a routine level. These results are consistent with theory because Kalpesh, as a beginner-GTA, most often reflected at lower levels because he needed the proper scaffolding so that he can progress to the higher levels of self-reflection (Ward & McCotter, 2004).
Analysis of Kalpesh’s practice. Although I found that all three sources of information (Kalpesh, his students, and I) could confirm Kalpesh’s drive to engage his students, I could not discern any patterns of change in his practice (Table 4.40).

Table 4.40
Kalpesh’s Progression of Teaching Practice

<table>
<thead>
<tr>
<th>Source of Information</th>
<th>Round 1</th>
<th>Round 2</th>
<th>Round 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Angela Delp</strong></td>
<td>Observation form</td>
<td>Often calling on students for answers; boardwork is mostly clear and organized but sometimes small</td>
<td>Observation form</td>
</tr>
<tr>
<td><strong>Kalpesh</strong></td>
<td>Interview/Journal</td>
<td>Comfortable with teaching; goal to have more interaction in class; students are not motivated; noticed more student interaction in video; honest with students</td>
<td>Interview/Journal</td>
</tr>
<tr>
<td><strong>Kalpesh’s students</strong></td>
<td>Midterm Evaluations</td>
<td>He wants students to succeed; knows what he is teaching quite well; very willing to help; very effective; attempts to engage the classroom and have them ask questions; hard to understand at times in writing and speech; sometimes a little fast; good at explaining</td>
<td>End-of-course Evaluations</td>
</tr>
</tbody>
</table>

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Randal. Randal was a White 50+ male from the U.S. who was working on his Master’s in Ocean Engineering. He was interested in a teaching assistant position so that he could interact with students, share his interest in the content area, and learn new skills. He had no teaching experience prior to the GTA Seminar and had no plans for what he intended to do after graduation. Randal joined my study because he empathized with my plight as a researcher needing participants.

Microteaching journal analysis. When conducting a content analysis of the microteaching journals that Randal completed during the seminar, I found that he had mostly self-related and task-related concerns (Table 4.41, p. 300). He reflected at a routine level as evidenced in his focus on self concerns in the following excerpts from his journal:

Although I was initially nervous, I settled down quickly and improved throughout the lecture. I was very comfortable with the material so that helped a lot.

I made a little too aggressive lesson plan and had more than 10 minutes worth of material.

I will be more conscious of my use of the word “um” especially in the early going.

I feel I maintained good eye contact and addressed student by name to keep them engaged.
### Table 4.41

*Randal’s Progression of Reflection Levels*

<table>
<thead>
<tr>
<th>During Seminar</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Routine Focus</strong>&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Nervous initially; comfortable with material; lesson too long; verbal pause, “um;” good eye contact; addressing students by name; enthusiasm; greater confidence; be motivated</td>
</tr>
<tr>
<td><strong>Technical Focus</strong>&lt;sup&gt;b&lt;/sup&gt;</td>
<td>Time constraints; holding students’ attention</td>
</tr>
<tr>
<td><strong>Technical Inquiry</strong>&lt;sup&gt;c&lt;/sup&gt;</td>
<td>Error in assessment</td>
</tr>
<tr>
<td><strong>Technical Change</strong>&lt;sup&gt;d&lt;/sup&gt;</td>
<td>Double-check for errors in assessments</td>
</tr>
<tr>
<td><strong>Dialogic Inquiry</strong>&lt;sup&gt;e&lt;/sup&gt;</td>
<td>Plan to improve by getting feedback from students and professors</td>
</tr>
</tbody>
</table>

#### Round 1

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Technical Focus</strong>&lt;sup&gt;b&lt;/sup&gt;</td>
<td>Balancing TA duties and own studies and personal life; Results on homework and lab exercises indicate learning is happening</td>
</tr>
<tr>
<td><strong>Dialogic Inquiry</strong>&lt;sup&gt;e&lt;/sup&gt;</td>
<td>Level of comprehension of students seems below my expectations</td>
</tr>
<tr>
<td><strong>Dialogic Change</strong>&lt;sup&gt;f&lt;/sup&gt;</td>
<td>Check understanding of students with midterm grades; keep students actively engaged during lecture so that I can better assess how well material is absorbed in real time</td>
</tr>
</tbody>
</table>

#### Round 2

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Routine Focus</strong>&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Increased confidence</td>
</tr>
<tr>
<td><strong>Dialogic Inquiry</strong>&lt;sup&gt;e&lt;/sup&gt;</td>
<td>Unsure if students grasp material; students’ level of familiarity with building electronic circuits is not what I expected</td>
</tr>
<tr>
<td><strong>Dialogic Change</strong>&lt;sup&gt;f&lt;/sup&gt;</td>
<td>Next time I will have my students build many more simple circuits early in the semester and work up to the difficult ones; I plan to be more interactive with the students</td>
</tr>
</tbody>
</table>

#### Round 3

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Routine Focus</strong>&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Ability to explain complex topics in a simple way; this experience was rewarding; positive student feedback</td>
</tr>
<tr>
<td><strong>Technical Focus</strong>&lt;sup&gt;b&lt;/sup&gt;</td>
<td>Learning goals were met; tests/assignment grades improved; level of questions asked by students progressed from basic to more advanced</td>
</tr>
<tr>
<td><strong>Transformative Inquiry</strong>&lt;sup&gt;g&lt;/sup&gt;</td>
<td>Uncertainty of background knowledge level of students; made assumptions of students’ ability that were too high</td>
</tr>
<tr>
<td><strong>Transformative Change</strong>&lt;sup&gt;h&lt;/sup&gt;</td>
<td>Start class with simpler experiments next time</td>
</tr>
</tbody>
</table>

*Note. <sup>a</sup>Routine Focus = Focus is on self-centered concerns. <sup>b</sup>Technical Focus = Focus is on specific teaching tasks. <sup>c</sup>Technical Inquiry = Questions are implied by frustration, subject stops asking questions after initial problem is addressed. <sup>d</sup>Technical Change = Personally responds to situation, but does not use the situation to change perspective. <sup>e</sup>Dialogic Inquiry = Questions are asked with consideration of perspectives of students, peers, and others. <sup>f</sup>Dialogic Change = Synthesizes situated inquiry to develop new insights about teaching or learners. <sup>g</sup>Transformative Inquiry = Long-term ongoing inquiry. <sup>h</sup>Transformative Change = Reframing of perspective leading to fundamental change of practice. See Ward and McCotter’s (2004) rubric for more detailed descriptions.*
I feel that I was excited about the material and that enthusiasm reflected in my lecture.

I started my lecture with greater confidence today than yesterday.

He had a technical level of self-reflection as evidenced from the following statements taken from his journal where he focused on task-related concerns:

I was more aware of the time constraints and made a lesson plan that better fit within those.

I felt I was able to hold the class’s attention by being motivated and enthusiastic.

Randal had a technical level of self-reflection also when he had an inquiry that resulted in a change as evidenced in his following journal excerpt: “On the downside, my prepared assessment was aligned with the lecture but contained an error. Therefore, for improvement tomorrow I will double check for errors within my assessment.” He had a dialogic level of self-reflection as evidenced by the following statement extracted from his journal: “I will continue to improve my effectiveness by getting feedback from students and professors.”

TCQ pre-assessment. At the start of the semester, Randal’s highest level of concern recorded in the TCQ was very concerned (Table 4.42, p. 302), which he noted four impact concerns (i.e., meeting needs for different students, diagnosing learning problems, challenging unmotivated students, and seeing that the student
Table 4.42

Randall’s Responses to Self, Task, and Impact Items of the Pre- and Post-assessment Teacher Concerns Questionnaire

<table>
<thead>
<tr>
<th>Self Concerns</th>
<th>Pre(^a)</th>
<th>Post(^b)</th>
<th>Diff(^c)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doing well in front of a superior</td>
<td>2</td>
<td>1</td>
<td>–1</td>
</tr>
<tr>
<td>Feeling adequate as a teacher</td>
<td>3</td>
<td>2</td>
<td>–1</td>
</tr>
<tr>
<td>Accepted by professionals</td>
<td>3</td>
<td>2</td>
<td>–1</td>
</tr>
<tr>
<td>Getting a favorable teaching evaluation</td>
<td>3</td>
<td>2</td>
<td>–1</td>
</tr>
<tr>
<td>Maintaining class control</td>
<td>2</td>
<td>1</td>
<td>–1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Task Concerns</th>
<th>Pre(^a)</th>
<th>Post(^b)</th>
<th>Diff(^c)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of instructional materials</td>
<td>3</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Under too much pressure</td>
<td>2</td>
<td>1</td>
<td>–1</td>
</tr>
<tr>
<td>Too many non-instructional duties</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Too many students each day</td>
<td>2</td>
<td>1</td>
<td>–1</td>
</tr>
<tr>
<td>Routine and inflexibility of teaching</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Impact Concerns</th>
<th>Pre(^a)</th>
<th>Post(^b)</th>
<th>Diff(^c)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meeting needs for different students</td>
<td>4</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Diagnosing learning problems</td>
<td>4</td>
<td>2</td>
<td>–2</td>
</tr>
<tr>
<td>Challenging unmotivated students</td>
<td>4</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Guiding intellectual growth</td>
<td>3</td>
<td>4</td>
<td>+1</td>
</tr>
<tr>
<td>Student gets what he/she needs</td>
<td>4</td>
<td>3</td>
<td>–1</td>
</tr>
</tbody>
</table>

Note. \(^a\) Pre = pre-assessment. \(^b\) Post = post-assessment. \(^c\) Diff = post-assessment score minus pre-assessment score. 1 = Not concerned, 2 = A little concerned, 3 = Moderately concerned, 4 = Very concerned, 5 = Extremely concerned.

gets what he/she needs). He responded that he was moderately concerned about feeling adequate as a teacher (self), being accepted by professionals (self), getting a favorable teaching evaluation (self), lacking instructional materials (task), and guiding intellectual growth (impact). He was a little concerned about doing well in front of a superior (self), maintaining class control (self), being under too much pressure (task), and having too many students each day (task). He was not
concerned about any of the other items listed on the TCQ. At the end of the TCQ, Randal added:

I am concerned about adequately teaching those least familiar with the subject matter and are struggling with their comprehension without boring or otherwise losing those who have some background and/or pick up the material more quickly.

Setting. Randal taught Instrument Design and Analysis for the Department of Marine and Environmental Systems on Tuesday nights from 5 to 8:30 p.m. He had 12 total students: three White U.S. females and nine White U.S. males. The majority of the students were ocean engineering majors; however, there were a few mechanical and aerospace engineers as well. Randal’s class consisted of a 1-1.5 hour lecture with a small break that was followed by a hands-on experiment using project kits. His main job was to deliver the lecture and provide guidance as needed during the lab.

Randal’s classroom could hold 24 students; however, he only had 12 students in his class. The students sat throughout the classroom at rectangular tables that allowed room for two students facing the front of the room. There were three columns of desks going four rows back from the front of the classroom. The instructor was provided with an 8-foot whiteboard, small desk, projection screen, and podium. Randal used the podium and the whiteboard on every occasion I
observed him lecturing. The entrance of the room was located in the front next to the whiteboard.

Round one observations and interviews. In an interview before I observed Randal for the first time, I asked him how things were going with his class. He told me the following:

On the first night of class I gave a survey to diagnose the knowledge levels of my students. I determined that there are various levels of experience in my class (25% no experience, 50% some experience, and 25% lots of experience). I am often teaching basic electronics to the lowest level of students for much of the class. This is somewhat a difficult situation because basic electronics is not a prerequisite for the class, so I have to instruct it; however, my more experienced students tend to lose interest in class when I do this.

I then observed Randal teach his class. His board work was clear and organized. Randal’s lesson was very thorough. His students replied to his questions during the lecture, but for the most part remained quiet. I wasn’t sure if he was aware of the students’ understanding of the material because of the low level of interaction in class. However, Randal did check the students’ faces for confused looks. He faced the class every time he spoke to them and had a clear voice with no verbal pauses.
When I asked Randal about how he felt about the class both he had observed, he responded with the following:

The lecture observed was the sixth lecture I’ve done for this class.
I am very happy with what I saw on the video—it gave me more confidence. I did notice that I talked to the board some (instead of the audience). My voice would trail off in volume level sometimes as well toward the end of certain sentences.

This was not the first time I’ve ever done something like this (teaching). I have given technical presentations to large groups and I’ve been a paid tutor for math and physics.

When Randal was told about what I had observed, he responded with the following:

I have had some problems determining whether the students understand what I’m teaching. They seem to all have the same face on when I am teaching—they are hard to read.

I have confidence that my students are following along with what I am teaching, but I don’t ask them point-blank questions because I don’t want to put anyone on the spot. I would like to convey that what I am teaching is not as difficult as it may seem to be.
Round one reflection journal analysis. When conducting a content analysis of Randal’s round one reflection journal, I found that he had task and impact concerns (Table 4.41, p. 300). He had a technical level of self-reflection when he focused on the following in his journal:

Although I initially underestimated the level of effort to perform the duties of a TA to my satisfaction, I have, through extra effort, caught up and am able to now balance the TA duties with my own studies and personal life.

The results of the homework and lab exercises seem to indicate learning is happening.

Randal had a dialogic level of self-reflection when he had an inquiry that resulted in a couple of changes as evidenced in his following journal excerpt:

Yet, I remain concerned that despite the fact that the students do not ask relevant questions during class, the level of comprehension of the material is below my expectations. The results of the midterm will likely either confirm or lay to rest these concerns.

I believe that in the future I would like to further develop the skills required to get the students more actively engaged during lecture time. This will help me better assess, in real time, how well the material is being absorbed.
Round two observations and interviews. The second time I observed Randal, he was reviewing materials with his students. Randal called out students during the review to respond to questions. The students were a little foggy on knowing answers so wait-time was applied. Sometimes Randal gave hints to help the students out. His students caught some discrepancies on the board. Randal corrected the discrepancies and thanked the students for catching the errors. Sometimes Randal faced the board while talking, but he was still audible. His voice was very clear and appropriately loud.

I asked Randal what he thought regarding his observations of this class. Randal responded:

- It reinforced the feeling that I had—that I need to continue my goal to get students talking more in class rather than just me talking to them. I noticed that the students want to be more involved. They want to interact in class. My confidence was bolstered in the first round of this research and now I can see the increased confidence in viewing the second round.

Round two reflection journal analysis. When conducting a content analysis of Randal’s round two reflection journal, I found that he had self and impact concerns (Table 4.41, p. 300). He had a routine level of self-reflection when he focused on self concerns in the following passage extracted from his journal: “I gained confidence from viewing my first lecture and that increased confidence was noticeable during the second lecture video.” Randal had a dialogic level of self-
reflection when he had an inquiry that resulted in a couple of changes as evidenced in his following journal excerpt:

I am still unsure whether or not the students are grasping the material and am hoping the midterm will give me the feedback I need to improve the lecture style (too fast, too slow, etc.).

I feel confident that the hands-on labs are adding value to the learning experience but the class’s level of familiarity with building electronic circuits is not what I expected. If I had this to do over I would have them build many more simple circuits early in the semester and work up to more difficult ones later.

When preparing the class for the midterm I attempted to get more class interaction. This experiment went well and I will look for future opportunities to get interactive dialog when possible.

Round three observations and interviews. During my third observation of Randal, he gave the students the layout of the class before starting. This time there was very little interaction with the students—possibly because the information is new to them. This left me wondering whether or not students would be able to infer some of the information after he taught part of it. For example, maybe the students could infer the structure of a non-inverting amplifier after seeing the inverting amplifier. Otherwise, Randal was professionally dressed, cognizant of making eye contact with students, clear, and well-spoken.
I asked Randal what he thought of the third class I recorded. He responded with the following: “I found that I have very few things at this point that I feel I need to improve upon. For the most part I am pleased because I saw improvement throughout in each of the three videos.”

*Round three reflection journal analysis.* When conducting a content analysis of Randal’s round three reflection journal, I found that he had self, task, and impact concerns (Table 4.41, p. 300). He reflected at a routine level as evidenced by the following statement taken from his journal focusing on a self-related concern:

Based on anecdotal evidence and feedback from friends and co-workers, I had always felt that I had the ability to explain complex topics in a simple, straightforward way. Finding out that I was able to successfully lecture, in the classroom environment, on a fairly complex set of materials was very rewarding.

Feedback received by students is very positive. He reflected at a technical level as evidenced by the following passage extracted from his journal that focuses on a task-related concern:

My feeling that the learning goals are being adequately met is supported by several points:
Test and assignment grades are improving (I purposely make these challenging).

The level of questions asked by the students during lecture has progressed from basic to a level that indicates that knowledge of the subject is “sinking in.

Randal had a transformative level of self-reflection when he had an inquiry that resulted in a couple of changes as evidenced in his following journal excerpt:

The greatest challenges faced were pertaining to the uncertainty of the level of background knowledge of the subject matter. Early on I made some assumptions about the students’ ability to assemble a circuit based on a schematic drawing. It turned out to be the case that there was insufficient understanding and skill in this area. In the future I would start the lab environment with some simpler experiments to familiarize the students with the basics before assigning more complex tasks.

*TCQ post-assessment.* At the end of my study, Randal’s highest level of concern on the TCQ was very concerned (Table 4.42, p. 302), which he named three impact concerns (i.e., meeting needs for different students, challenging unmotivated students, and guiding intellectual growth). He was moderately concerned with lacking instructional materials (task), and seeing that the student gets what he/she needs (impact). Randal was a little concerned about feeling
adequate as a teacher (self), being accepted by professionals (self), getting a favorable teaching evaluation (self), and diagnosing learning problems (impact). He was not concerned about any of the other items listed on the TCQ. At the end of the TCQ, Randal added:

I have a general concern that many students lack the motivation level to reach their full potential not only as students but in future endeavors. Finding one that is motivated to go above and beyond the bare minimum requirement is a rare thing indeed.

Analysis and interpretation of Randal’s concerns. According to the results of the TCQ pre-assessment (Table 4.42, p. 302), Randal was most concerned about four impact concerns (i.e., meeting needs for different students, diagnosing learning problems, challenging unmotivated students, and seeing that the student gets what he/she needs). On the post-assessment, he was still very concerned about meeting needs for different students (impact), challenging unmotivated students (impact), and guiding intellectual growth (impact). Randal increased in concern by one level from the pre-assessment to the post-assessment regarding guiding intellectual growth (impact). He decreased in concern by two levels from pre-assessment to post-assessment regarding diagnosing learning problems (impact).

According to the reflection journals, Randal had self and task concerns during the seminar; task and impact concerns in round one; self and impact concerns in round two; and self, task, and impact concerns in round three. Some of
the concerns Randal rated high on the TCQ pre-assessment and post-assessment match up with his concerns discussed in the reflection journals. For instance, his ongoing concern in all three rounds of the reflection journals about the differing backgrounds of his students matches with his high rankings of concern for meeting the needs of different students on the TCQ pre-assessment and post-assessment. His increase in concern regarding guiding intellectual growth matches his desire to have his students talking more in class than just him talking to them.

Randal did not, however, mention challenging unmotivated students in any of his reflection journals even though it was one of his highest ranking concerns on both the TCQ pre-assessment and post-assessment. I speculate that there may be some linkage between challenging unmotivated students and meeting the needs of different students because Randal was consumed with the problem of students with various backgrounds. It is quite possible that the students with little background knowledge were viewed as unmotivated in Randal’s perspective. From Randal’s students’ perspective, 3 out of 12 of his students made comments about needing more clarity on assignments, moving too quickly, and preferring to work gradually into difficult assignments. The rest of his students were pleased with his instruction.

Randal was a unique case due to some BIS data (e.g., age, work/presentation experience) and situational factors (e.g., dealing with a classroom of students with various backgrounds). This uniqueness may explain
why his concerns were often impact concerns and, thus inconsistent with Fuller’s (1969) theory. For instance, the conundrum of the varied knowledge levels of students somewhat forced Randal to be concerned at a higher level because his low-level students could not progress without knowing the basics first. Randal’s age and level of work experience may also explain why he is more concerned with impact than the average GTA.

**Analysis and interpretation of Randal’s self-reflections.** During the GTA Seminar, Randal reflected at routine and technical levels (Table 4.41, p. 300). Randal continued to reflect at a technical level in the first round of my study, but also reflected at a dialogic level. In the second round, he reflected at routine and dialogic levels. In the third and final round, he reflected at routine, technical, dialogic, and transformative levels. Randal’s levels of reflection increased from the GTA Seminar to round three of my study.

I believe there are several possible factors that contribute to this outcome of increase in self-reflection levels throughout the study: Randal’s prior work/presentation experience, his lack of teaching experience, his age, and his situation of students with various backgrounds. For instance, the problem of his students having various backgrounds was a continuous problem that caused him to think about it on every occasion I met with him. His prior work experience may have led him to have made assumptions about the ability of his students. His lack of teaching experience may have been the reason he started at a higher level than
the students could perform—even though he had done a preliminary test to establish their background levels. Although the coaching paired video playback Randal received could have been one of the contributing factors to his high-level self-reflection, it is difficult to even speculate such a relationship because Randal’s case is very unique and complex.

Analysis and interpretation of Randal’s practice. Although I did not find evidence of change in practice, I found agreements on observations of Randal’s practice between two sources at a time (Table 4.43, p. 315). For instance, both I and Randal noticed that he interacted more with students on the second round. Randal and some of his students (3 out of 12) both made statements of starting hands-on experience at a low level.
Table 4.43

*Randal’s Progression of Teaching Practice*

<table>
<thead>
<tr>
<th>Source of Information</th>
<th>Round 1</th>
<th>Round 2</th>
<th>Round 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Angela Delp</strong></td>
<td><strong>Observation form</strong>&lt;br&gt;Very thorough; Clear writing; students mostly quiet some interactions; sometimes asked students questions</td>
<td><strong>Observation form</strong>&lt;br&gt;Called on students more often to respond to questions; gave wait time for students to respond; sometimes faced board while talking, but still audible; very clear speech</td>
<td><strong>Observation form</strong>&lt;br&gt;Gave students layout of class before starting; very little interaction with students; cognizant of facing class and making eye contact; well spoken</td>
</tr>
<tr>
<td><strong>Randal</strong></td>
<td><strong>Interview/Journal</strong>&lt;br&gt;Teach to the lowest level of students; talked to board some; voice would trail off in volume level; able to balance TA duties</td>
<td><strong>Interview/Journal</strong>&lt;br&gt;Got my students to talk more in class than me talking to them; hands-on labs</td>
<td><strong>Interview/Journal</strong>&lt;br&gt;Confident; next time start labs with simpler experiments</td>
</tr>
<tr>
<td><strong>Randal’s students</strong></td>
<td><strong>Midterm Evaluations</strong>&lt;br&gt;Not available</td>
<td></td>
<td><strong>End-of-course Evaluations</strong>&lt;br&gt;A solid overview of the material; need more hands-on experience and gradually add difficulty; way too in depth; not patient; moves too quickly; need better clarity on assignments</td>
</tr>
</tbody>
</table>

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Outcomes with Respect to Research Question Four

My research questions were constructed to give this qualitative study the aim of discovering any influences of coaching, video playback, and coaching paired with video playback on my participants’ concerns, self-reflections, and practice. In this section, I will address the fourth research question on a within-group and between-group basis (if possible), starting with concerns. I will then move to self-reflections and, finally, practice.

Concerns. The microteaching journals from the GTA Seminar were evaluated to establish a baseline of participants’ concerns. Only 2 of the 13 professional development sequence participants (i.e., Ruth in the video group and Randal in the coached video group) had high-level impact concerns prior to this study. All 13 had self and task concerns at that time. This meant that there appeared to be some inconsistencies among the participants in the video reflection group and coached video reflection group at the baseline. Beyond this baseline, the analysis of the reflection journals in rounds one, two, and three of the study indicated that only one person in each professional development sequence group had high-level impact concerns on more than one occasion in conjunction with self and task concerns (i.e., Reese, Catrina, and Randal). Everyone else in all of the professional development sequence groups had predominantly self and task concerns in their reflection journals.
These within-group differences apparent in the baseline data and study data as well as the limited differences in participants’ concerns across the professional development sequence groups makes it difficult, if not impossible, to conduct a between-groups comparison. As a result, there is little basis for offering claims about the influence of these professional development sequences on teaching concerns (Table 4.44, p. 318). However, I did find an added concern. All 13 participants in the professional development sequences referred to having to balance roles and/or manage time at some point during the study. I combined balancing roles and managing time because the participants used the terms interchangeably.

In addition, I compared the TCQ responses to reflection journal entries to look for agreement and thus add support to the journal statements. On the basis of this comparison, I found that most of the participants had only partial consistency between the teaching concerns expressed in their journal entries and those in their TCQ responses (i.e., consistency for 9 of 13 participants). However, for four participants, there was no apparent agreement between their reflection journals and TCQs (e.g., Sharad, Ray, Gargi, Kalpesh)—4 out of 5 of the international GTAs who were all coached. The fifth international GTA, Yashraj, was in the video reflection group and did not receive any coaching.
Table 4.44

Progression of Teaching Concerns by Group

<table>
<thead>
<tr>
<th>Participant</th>
<th>Seminar\textsuperscript{a}</th>
<th>TCQ Pre-A</th>
<th>Round 1 Reflection Journal</th>
<th>Round 2 Reflection Journal</th>
<th>Round 3 Reflection Journal</th>
<th>TCQ Post-A</th>
<th>TCQ Agreement\textsuperscript{b}</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coached</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Andrea</td>
<td>S, T</td>
<td>S</td>
<td>S, T</td>
<td>S, T, I</td>
<td>S, T, I</td>
<td>S, I</td>
<td>Partial (both TCQs)</td>
</tr>
<tr>
<td>Renee</td>
<td>S, T</td>
<td>S</td>
<td>S, T</td>
<td>S, T</td>
<td>S, T, I</td>
<td>S</td>
<td>Partial (self concerns)</td>
</tr>
<tr>
<td>Video</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yashraj</td>
<td>S, T</td>
<td>S, I</td>
<td>S, T</td>
<td>T, I</td>
<td>S, T, I</td>
<td>S, I</td>
<td>Partial (both TCQs)</td>
</tr>
<tr>
<td>Coached Video</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Karen</td>
<td>S, T</td>
<td>S, I</td>
<td>T</td>
<td>T</td>
<td>S, T, I</td>
<td>S</td>
<td>Partial (highest concern)</td>
</tr>
<tr>
<td>Ray</td>
<td>S, T</td>
<td>I</td>
<td>S, T</td>
<td>S, T, I</td>
<td>S, T, I</td>
<td>I</td>
<td>None</td>
</tr>
<tr>
<td>Gargi</td>
<td>S, T</td>
<td>S, I</td>
<td>S, T</td>
<td>S, T</td>
<td>S, I</td>
<td>S</td>
<td>None</td>
</tr>
<tr>
<td>Kalpesh</td>
<td>S, T</td>
<td>S</td>
<td>S, T</td>
<td>S</td>
<td>S, T</td>
<td>S, I</td>
<td>None</td>
</tr>
<tr>
<td>Randal</td>
<td>S, T, I</td>
<td>I</td>
<td>T, I</td>
<td>S, I</td>
<td>S, T, I</td>
<td>I</td>
<td>Partial (both TCQs)</td>
</tr>
</tbody>
</table>

\textit{Note.} \textit{N} = 13. \textsuperscript{a}Seminar = Teaching concerns for three microteaching journals combined before the start of the semester. \textsuperscript{b}TCQ Agreement = Amount of agreement between reflection journal entries and TCQ pre-assessment/post-assessment responses. S = Self concerns, T = Task concerns, I = Impact concerns.
**Self-reflections.** The microteaching journals from the GTA Seminar were evaluated to establish a baseline of participants’ self-reflections. Only 2 of the 13 professional development sequence participants (i.e., Ruth in the video group and Randal in the coached video group) had high-level dialogic self-reflections at the baseline. However, all 13 participant in these professional development sequences, including Ruth and Randal, had routine and technical levels of self-reflection at the baseline. This meant that the video reflection group and coached video reflection group had inconsistencies between group members in the baseline. When looking at the reflection journals in rounds one, two, and three of the study, all participants in the three professional development sequence groups had lower-level self-reflections. However, one person in each professional development sequence group had additional higher-level dialogic and/or transformative self-reflections on more than one occasion during the study (i.e., Reese, Catrina, and Randal). Because inconsistencies among members within a group were established in the baseline as well as during my study (Table 4.45, p. 320), this result prevents me from making any comparisons between groups or claims about the influence of the professional development sequences on levels of self-reflection.

I also looked at dimensions as well as the reflection-levels from the Ward and Mc Cotter (2004) rubric. The most interesting dimension was change because it occurred less frequently and involved the participant reflecting on a change of practice and/or perspective. Only 5 of the 13 professional development sequence
Table 4.45

Progression of Reflection Levels by Group

<table>
<thead>
<tr>
<th>Participant</th>
<th>Seminara</th>
<th>Round 1</th>
<th>Round 2</th>
<th>Round 3</th>
<th>Changeb</th>
<th>High Levelc</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coached</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reese</td>
<td>R, Te</td>
<td>R, Te</td>
<td>R, Te, D</td>
<td>R, Te, Tr</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Andrea</td>
<td>R, Te</td>
<td>R, Te</td>
<td>R, Te, D</td>
<td>R, Te</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sharad</td>
<td>R, Te</td>
<td>R, Te</td>
<td>Te, D</td>
<td>R, Te</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Renee</td>
<td>R, Te</td>
<td>R, Te</td>
<td>R, Te</td>
<td>R, Te</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Video</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yashraj</td>
<td>R, Te</td>
<td>R, Te</td>
<td>Te, D</td>
<td>R, Te</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Catrina</td>
<td>R, Te</td>
<td>R, Te, D</td>
<td>R, Te</td>
<td>R, D</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Robert</td>
<td>R, Te</td>
<td>R, Te</td>
<td>R, Te</td>
<td>R, Te</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ruth</td>
<td>R, Te, D</td>
<td>R, Te</td>
<td>R, Te</td>
<td>R, Te</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coached Video</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Karen</td>
<td>R, Te</td>
<td>Te</td>
<td>Te</td>
<td>R, Te</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Ray</td>
<td>R, Te</td>
<td>R, Te</td>
<td>R, Te, D</td>
<td>R, Te</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Gargi</td>
<td>R, Te</td>
<td>R, Te</td>
<td>R, Te</td>
<td>R, D</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Kalpesh</td>
<td>R, Te</td>
<td>R, Te</td>
<td>R</td>
<td>R, Te</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Randal</td>
<td>R, Te, D</td>
<td>Te, D</td>
<td>R, D</td>
<td>R, Te, Tr</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Note. N = 13; aSeminar = Reflection levels for three microteaching journals combined; bChange = Those participants who experienced the highest dimension on the Ward and McCotter (2004) rubric during the study rounds; cHigh Level = Those participants who reflected at high levels during the study rounds more than one time; R = Routine reflection level; Te = Technical reflection level; D = Dialogic reflection level; Tr = Transformative reflection level.

participants reflected on the experience of the dimension of change in their self-reflections (i.e., Catrina, Karen, Ray, Gargi, and Randal). In terms of BIS data, these five participants did not share any characteristics and differed on several factors: age, gender, nationality, subject area, and experience. However, 4 out of those 5 belonged to the coached video reflection group. Although this looks like a striking difference amongst groups, I suspect it isn’t completely due to group membership.
Catrina and Ray experienced their respective change dimensions of providing guided notes and changing group-work rubrics outside of the influence of the professional development sequence. For instance, Catrina had enacted her change during the round one observation—before any of the influences of the professional development sequence could be experienced. Ray’s change dealt with grading group work, which he dealt with outside of class. One of Randal’s change dimensions could be linked only to video playback (e.g., planning on engaging his students more during class). One of Karen’s change dimensions could be linked to what she saw on her video playback (e.g., giving a mini-lecture about lab); however, her other change dimensions were not linked to coaching or video playback. Gargi changed how she dealt with a problem student after both seeing the video playback and being coached.

**Practice.** Only two people made changes to their teaching practice in my study (Table 4.46, p. 322). In the coached group, Andrea made changes to the way she presented materials in class. In the coached video playback group, Karen changed her informal way of teaching to be more formal. This outcome prevents me from making any claims about the influence of the professional development sequences on teaching practice. However, important to note, Andrea and Karen were the only U.S. women with little teaching experience in groups receiving coaching other than Renee who was motivated to participate in my study by the money incentive.
Table 4.46

*Change in Teaching Practice by Group*

<table>
<thead>
<tr>
<th>Participant</th>
<th>Changea</th>
<th>Comments on Changeb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coached</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reese</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Andrea</td>
<td>X</td>
<td>Improvements made on public speaking</td>
</tr>
<tr>
<td>Sharad</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Renee</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Video</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yashraj</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Catrina</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Robert</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ruth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coached</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Video</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Karen</td>
<td>X</td>
<td>Changed from teaching in an informal style to a formal style</td>
</tr>
<tr>
<td>Ray</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gargi</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kalpesh</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Randal</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. N = 13. 'Change = Those participants who made changes to their teaching practice. 'Comments on Change = description of the changes the participant made to his/her teaching practice.

**Additional Outcomes: BIS data**

For this qualitative study I had the aim of discovering any influences of coaching, video playback, and coaching paired with video playback on my participants’ concerns, self-reflections, and practice. However, other factors such as that collected from the Background Information Survey may play an important role in the outcomes of my study and should not be ignored. In this section, I will review the participants’ BIS data on a group-by-group basis. Then I will discuss these variables holistically as they may demonstrate patterns related to outcomes between or across groups.
Comparison group. There was an even number of males to females: 2 to 2 (Table 3.1, p. 91). One of the males was from India, whereas all the other participants were from the USA. Both females were in the Biology program. The U.S. male was in the Computer Science program. The male from India was in the Biomedical Engineering program. All GTAs except Matthew, the U.S. male, were in master’s programs; Matthew was working on his PhD. Lidia and Matthew were the only participants who indicated they had prior classroom teaching experience (Table 3.1, p. 91). Matthew was the oldest in the group—in his late thirties. Lidia was the next oldest—in her late twenties. The other two comparison group members were in their early twenties.

Coached reflection group. There was an even number of males to females: 2 to 2. One of the males was from India, whereas the other three participants were from the USA. One female was in the Biology program. The other female was in the Department of Marine and Environmental Science. The U.S. male was in the Mechanical and Aerospace Engineering program. The male from India was in the Chemistry program. All GTAs except Sharad, the male from India, were in master’s programs. Sharad was working on his PhD. Sharad and Renee were the only participants who claimed to have prior classroom teaching experience on the Background Information Survey (Table 3.1, p. 91). Everyone in the coached reflection group was in their early twenties.
**Video reflection group.** There was an even number of males to females: 2 to 2. One of the males was from India, whereas all the other participants were from the USA. One female was in the Psychology program. The other female was in the Math program. The U.S. male was in the Biomedical Engineering program. The male from India was in the Mechanical and Aerospace Engineering program. All GTAs but Catrina and Ruth, the females, were in master’s programs. Catrina and Ruth were working on their PhDs. Everyone except Yashraj claimed to have prior classroom teaching experience (Table 3.1, p. 91). Catrina was the oldest in the group—in her late thirties. All of the other video reflection group members were in their early twenties.

**Coached video reflection group.** There were three males and two females in the coached video reflection group. Two males and one female were from India, whereas the other two participants were from the USA. The female from India was in the Biology program. The other female was in the Physics and Space Sciences program. The U.S. male was in the Department of Marine and Environmental Sciences. One of the males from India was in the Mechanical and Aerospace Engineering program. The other male from India was in the Math program. All GTAs except Karen, the U.S. female, were in master’s programs. Karen was working on her PhD. Only Karen claimed to have prior classroom teaching experience (Table 3.1, p. 91). Randal was the oldest in the group—in the 50+ age
category. All of the other coached video reflection group members were in their early twenties.

**Unique cases regarding BIS data.** I found what might be hints of patterns within the outcomes of my study with regard to BIS data. For instance, of the 3 participants that had high-level concerns and high-level self-reflections (i.e., Randal, Catrina, and Reese), 2 out of 3 were unique cases in that they were more mature students (i.e., Randal and Catrina) and 2 out of 3 had a class in teaching beforehand (i.e., Catrina and Reese).

In addition, I found another more mature, high-level concerns participant in my comparison group—Matthew. When I looked at solely the open-ended responses of the TCQ tests in the comparison group, I found that Matthew was the only participant that demonstrated a high level of concern as evidenced in the following excerpt of his response:

> I have noticed that my concerns have changed from the beginning of the semester. Originally it was—will I be able to provide what the students need or be able to help them to achieve the learning objectives. Now I feel that it has changed from that to a challenge on how can I motivate or reach the students that are having a difficult time.

In the age range of 35-39, Matthew was the oldest participant of the comparison group. Across the three professional development sequence groups’ reflection
journal analyses, 11 out of 13 GTAs had predominantly low-level concerns and low-level self-reflections—all of which were in the 20-24 age range.

**Additional Outcomes: Professional Development Sequence Feedback**

Throughout the study, participants offered their feedback and thoughts on the study and professional development sequences. I used content analysis procedures to identify the general direction of this feedback. The results of this analysis are summarized in Table 4.47 (p. 327). Within this feedback data, I noticed a pattern in this feedback on professional development sequences in that the coached reflection group and coached video reflection group both had mostly positive feedback on their respective professional development sequences. However, the video reflection group was mostly disappointed in receiving video feedback alone. Each participant’s thoughts and feedback were chronologically organized by study round under each group in this section. The comparison group participants were excluded because they did not experience any of the professional development sequences of my study.

This pattern of feedback where the video reflection group was the only group that was disappointed with their professional development sequence could be related to sociocultural theory and/or social cognitive theory (Bandura, 1977; Vygotsky, 1962). In terms of sociocultural theory, the majority of GTAs in this group mentioned the need for assistance to reach the higher levels in their zones of
Table 4.47

Professional Development Sequence Subjects’ Feedback on Professional Development Sequences

<table>
<thead>
<tr>
<th>Subject</th>
<th>Prof. Dev. Seq.\textsuperscript{a} received</th>
<th>Type of Feedback</th>
<th>Commentary on Feedback</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reese</td>
<td>Coaching</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Andrea</td>
<td>Coaching</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Sharad</td>
<td>Coaching</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Renee</td>
<td>Coaching</td>
<td>X</td>
<td>She was encouraged by coach to involve students more in discussions. Otherwise she didn’t get much out of it.</td>
</tr>
<tr>
<td>Yashraj</td>
<td>Video playback</td>
<td>X</td>
<td>He stated it would have been better if he was evaluated by others</td>
</tr>
<tr>
<td>Catrina</td>
<td>Video playback</td>
<td>X</td>
<td>She needed to consult with faculty</td>
</tr>
<tr>
<td>Robert</td>
<td>Video playback</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Ruth</td>
<td>Video playback</td>
<td>X</td>
<td>She anticipated feedback from researcher; video was not beneficial to her</td>
</tr>
<tr>
<td>Karen</td>
<td>Coaching &amp; Video playback</td>
<td>X</td>
<td>Only mentioned coaching in comments</td>
</tr>
<tr>
<td>Ray</td>
<td>Coaching &amp; Video playback</td>
<td>X</td>
<td>Only mentioned video playback in comments</td>
</tr>
<tr>
<td>Gargi</td>
<td>Coaching &amp; Video playback</td>
<td>X</td>
<td>Mentioned coaching and video playback</td>
</tr>
<tr>
<td>Kalpesh</td>
<td>Coaching &amp; Video playback</td>
<td>X</td>
<td>Mentioned coaching and video playback</td>
</tr>
<tr>
<td>Randal</td>
<td>Coaching &amp; Video playback</td>
<td>X</td>
<td>Only mentioned video playback in comments</td>
</tr>
</tbody>
</table>

\textit{Note. N} = 13; "Prof. Dev. Seq. = Professional Development Sequence; \textsuperscript{2} + = positive feedback; \textsuperscript{3} N = neutral feedback; \textsuperscript{4} - = negative feedback.
proximal development. In terms of social cognitive theory, GTAs may not have the ability to self-regulate on their own. Comments from these GTAs also suggest the need for some sort of direction or structure, of which they did not receive in this study, in setting goals and developing plans, self-observation, self-evaluation, and self-reaction.

**Coached reflection group feedback.** Everyone in the coached reflection group gave mostly some sort of positive feedback regarding coaching. There were also instances where these participants admitted to not getting much benefit from coaching. I have included all of these passages in the following responses from the coached reflection group.

*Reese.* The following passage extracted from Reese’s open-ended response to the TCQ post-assessment states his views of his being coached:

The material I was teaching my students was usually well known to me and it was easy to teach the students, and I feel this study helped me realize this. I think it was beneficial to take the extra time after teaching how it went while doing surveys and to discuss the class afterwards with Angela.

*Andrea.* The following passage extracted from Andrea’s open-ended response to the TCQ post-assessment states her views of his being coached:

It was really helpful to discuss the labs with someone and get feedback on how they were going. Angela was able to pick up on things I hadn’t realized
and was able to brainstorm with me on ways to improve the lab. It was really helpful and I have a lot of ideas on how to improve for next year.

Sharad. The following passage extracted from Sharad’s open-ended response to the TCQ post-assessment states his views of his being coached: “I realized how I’m doing as a TA, it was like a self-reflection. As a beginner, it was very, very important for me to get feedback.”

Renee. The following passage extracted from Renee’s open-ended response to the TCQ post-assessment states her views of her being coached:

I think when I was told that the observer liked the way I asked questions or tried to involve the students more in a discussion, it influenced me to try to do this more. Other than that, I didn’t get very much out of it.

Video reflection group feedback. Three of the 4 participants in the video reflection group were disappointed with video feedback because they wanted to consult with another person. There was one participant, however, that seemed to be pleased with video feedback. I have included all of these passages in the following responses from the video reflection group.

Yashraj. The following passage extracted from Yashraj’s open-ended response to the TCQ post-assessment states his views of video feedback: “I did get some feedback from myself when I watched the videos but I think it would have been better if I was evaluated by others.”
Catrina. The following passages extracted from Catrina’s round two and round three reflection journals state her views of video feedback:

The hardest part about teaching isn’t what I see on the videos, so it’s not really informative for me to watch them. [round two]

I’m happy to serve as a participant in anyone’s study, but it was very frustrating to me that I couldn’t consult with any of the faculty on how to improve what I was doing. [round three]

Robert. The following passage extracted from Robert’s round two reflection journal states his views of video feedback:

I do realize, after watching the video of class, that sometimes when in the projector-type classrooms, I need to speak up more. Also, watching for distracted students (playing on the computer) is important, because it distracts so many students around the individual as well.

Ruth. The following passage extracted from Ruth’s open-ended response to the TCQ post-assessment state her views of video feedback:

I was anticipating receiving feedback from the researcher so that I could improve my teaching abilities, but I did not receive feedback. I’ve gotten to see myself teach on video, but it is not very beneficial. I can see the behavior that needs to be corrected, but I have no idea how to correct it.

Coached video reflection group feedback. Everyone in the coached video reflection group gave mostly some sort of positive feedback regarding coaching
combined with video feedback. There were also instances where these participants admitted to not getting much benefit from coaching and video. I have included all of these passages in the following responses from the coached video reflection group.

Karen. The following passage extracted from Karen’s open-ended response to the TCQ post-assessment states her views of coached video feedback:

“Everything went fine. I enjoyed telling you [Angela] about my experiences and getting your feedback.”

Ray. The following passage extracted from Ray’s open-ended response to the TCQ post-assessment states his views of coached video feedback:

I have picked up certain mannerisms that I altered after watching the videos. I also became more assertive when I taught a particular lesson and on the whole became a better teacher. Watching yourself on video really helps an individual understand their strengths and weaknesses.

Gargi. The following passage extracted from Gargi’s open-ended response to the TCQ post-assessment states her views of coached video feedback:

I learned a lot from watching my own videos. Talking to Angela was very useful. She saw the problems in my class and helped me correct them. She told me that I was teaching fine, so it improved my confidence in my own skills.
Kalpesh. The following passage extracted from Kalpesh’s open-ended response to the TCQ post-assessment states his views of coached video feedback:

The main purpose of my involvement in this study was to watch videos of my teaching and these have been invaluable in me assessing myself as an instructor. Also, I have gotten good feedback from you [Angela] regarding the same.

Randal. The following passage extracted from Randal’s open-ended response to the TCQ post-assessment states his views of coached video feedback:

“I got an opportunity to see myself from the perspective of the class attendee and made some corrections to my teaching style to do that observation.”

Additional Outcomes: GTA Seminar Feedback

For each reflection journal of each round of my study, I asked the following questions: “At this point in the semester, what are your primary responsibilities as a TA? Further, in fulfilling these responsibilities, in what ways, if any, have you found yourself relying on the information and/or experiences included in the TA Seminar?” In this section, attention is given to the last of these questions. I found a pattern in the professional development sequence participants’ responses to this question (Table 4.48, p. 333) in that every participant in every group had something positive to share about the seminar (e.g., themes two, three, four, and five)—even though he/she may admit to not using all of the information given in the seminar (e.g., theme one). Each of the professional development sequence participant’s
Table 4.48  
Professional Development Sequence Participants’ Feedback on the GTA Seminar

<table>
<thead>
<tr>
<th>Prof. Dev. Seq. Group Participants</th>
<th>Theme 1: don’t use</th>
<th>Theme 2: learning styles</th>
<th>Theme 3: lesson planning</th>
<th>Theme 4: micro-teaching</th>
<th>Theme 5: confidence</th>
<th>Other positive feedback</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coached Reflection</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reese</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Andrea</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sharad</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Renee</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Subtotal</td>
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<td>2</td>
<td>3</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Video Reflection</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yashraj</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Catrina</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Robert</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Ruth</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
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<td>0</td>
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</tr>
<tr>
<td>Coached Video Reflection</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Karen</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ray</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gargi</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kalpesh</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Randal</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subtotal</td>
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<td>3</td>
<td>4</td>
<td>1</td>
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</tr>
<tr>
<td>Grand Total</td>
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<td>2</td>
<td>8</td>
<td>8</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Note. N = 13; Prof. Dev. Seq. = Professional Development Sequence; Theme one = Did not use information acquired from seminar; Theme two = Appreciation for the help in dealing with students of different learning styles; Theme three = Appreciation for class preparation or organization help by learning how to create a lesson plan; Theme four = Appreciation for the teaching experiences from the microteaching sessions of the seminar; Theme five = Appreciation for feeling more prepared or more confident from having attended the seminar.
responses to the second question was organized by study round under each group in this section following the table.

**Coached reflection group feedback.** Everyone in the coached reflection group gave some sort of positive feedback regarding the GTA Seminar. In theme four, 3 of 4 appreciated the teaching experiences from the microteaching sessions of the seminar. In theme three, 2 of 4 were pleased to have had class preparation or organization help by learning how to create a lesson plan. In theme five, 2 of 4 mentioned feeling more prepared or more confident from having attended the seminar. There were also instances where these participants admitted to not using the information they acquired from the seminar (theme one). I have included all of these passages in the following responses from the coached reflection group.

*Reese.* He responded with comments on the seminar only in round one. The following passage extracted from his journal clearly reflects themes three and four, his views on the value of teaching experiences and class preparation help during the GTA Seminar:

I previously took a course on teaching in undergrad and I have some experience teaching already, so I mainly use this previously acquired information when teaching. However, I mostly benefited from the afternoons of the GSA Seminar where we taught a lesson to a class of other GSAs. I learned about a good way to prepare for teaching the class, and figure out just the right amount of background knowledge to give.
Andrea. She responded with comments on the seminar only in rounds one and three. The following passages from her journal clearly reflect themes one and four, her views on the value of teaching experience and her lack of use of other information given during the GTA Seminar:

I do think the practice of presenting a lecture during the seminar was useful, but I have not had to design a lesson plan. [round one]

From the TA Seminar, I rely most heavily on the practice I had from public speaking. [round three]

Sharad. He responded with comments on the seminar only in round one. The following passage from his journal clearly reflects themes three, four, and five:

“Teaching assistant seminars as well as microteaching experience enhanced my confidence level and helped me to organize my talks.”

Renee. She responded with comments on the seminar only in rounds two and three. The following passages from her journal clearly reflect themes one and five:

Nothing from the TA Seminar can really help with not knowing information. [round two]

I still have not had to rely on the information from the TA Seminar very much. But that is NOT to say that the TA Seminar didn’t help me. I felt much more prepared going into this whole TA thing after attending the
seminar, and I was really glad I did. The specific things we learned didn’t necessarily apply to my class, but overall it gave me a feel for what it was going to be like, which I needed. So I did appreciate it greatly. [round three]

**Video reflection group feedback.** Everyone in the video reflection group gave some sort of positive feedback regarding the GTA Seminar. In theme three, 3 of 4 were pleased to have had class preparation or organization help by learning how to create a lesson plan. In theme two, 2 of 4 appreciated the help in dealing with students of different learning styles. In theme four, 1 of 4 appreciated the teaching experience from the microteaching sessions of the seminar. One participant appreciated the information given about the Academic Support Center and another benefited in learning how to keep the class involved and interested. I have included all of these passages in the following responses from the video reflection group.

*Yashraj.* He responded with comments on the seminar only in rounds one and two. The following passages from his journal clearly reflect themes two and three:

The lesson plan designing part of the TA Seminar has helped me a lot as I am better able to record and document the course plans and what is being taught each class for future TAs who will be teaching the same course.

Apart from this, the knowledge regarding how to keep the class involved...
and interested and the teaching techniques of testing them at the end of class. All of these have paid off really well. [round one]

The seminar helped me primarily in creating effective lesson plans and also in understanding and dealing with students with different learning styles. [round two]

Catrina. She responded with comments on the seminar only in rounds one and two. The following passages from her journal clearly reflect themes two and three:

Things that I found useful from the TA Seminar: different styles of learning, ASC for students who are under-performing, and tying objectives to content to testing. [round one]

The information that I still find valuable is the lecture that Dr. Webbe gave on styles of learning. I try to avoid a lecture-only class. Instead, I try to incorporate different kinds of activities during the class to help all learners. I still reflect back on the “Aligning Curriculum” talk a lot, especially since that’s something I spend a lot of time doing. However, I had a 3-credit class in college teaching two years ago and an instructional design class about 5 years ago, so the information in the talk was nothing new to me. [round two]
Robert. He responded with comments on the seminar in all three rounds.

The following passages from his journal clearly reflect theme four:

I appreciated the critiques from the microteaching seminars. I try to remember them when I am teaching the students. [round one]

I still find myself recalling the advice of my peers during our microteaching sessions, specifically with regards to presenting material. I attempt to reduce distractions for the students, so they can focus on the lesson, and I try to remain enthusiastic while speaking. [round two]

I recall some useful comments from my microteaching sessions wherein our advisor/leader helped to convey the importance of sort getting the big picture across to the class/student. [round three]

Ruth. She responded with comments on the seminar only in rounds one and three. The following passages from her journal clearly reflect theme three:

I found that it is best to make a lesson plan before class if the material is somewhat complicated, and this is a skill I learned from the TA Seminar. [round one]

I still use the same knowledge from the TA Seminar—which is to go over the material ahead of time so that it can be explained better. [round three]
Coached video reflection group feedback. Everyone in the coached video reflection group gave mostly some sort of positive feedback regarding the GTA Seminar. In theme four, 4 of 5 appreciated the teaching experience from the microteaching sessions of the seminar. In theme three, 3 of 5 were pleased to have had help in class preparation by learning how to create a lesson plan. In theme five, 2 of 5 appreciated the boost in confidence they felt after having attended the seminar. One participant appreciated the information given about conflict management. There were also instances where these participants admitted to not using the information they acquired from the seminar (theme one). I have included all of these passages in the following responses from the coached video reflection group.

Karen. She responded with comments on the seminar in all three rounds. The following passages from her journal clearly reflect theme one; however, she indicated that she found the seminar session on conflict management beneficial:

I have not found myself using much information from the seminar. [round one]

I have found myself relying on information given in the seminar more recently. I have had a student try to have a personal conversation with me and I’ve had to avoid the conversation (because it is unethical). As a TA in the beginning of the semester, I was very strict about late work. Now, I’m
working with the students who had a lot of late work in the semester. [round two]

I keep remembering back to the seminar, it is not right to pick favorites, so I have to try to be consistent for all students. [round three]

Ray. He responded with comments on the seminar in all three rounds. The following passages from his journal clearly reflects themes three, four, and five:
The TA Seminar helped me with tips and guide to teaching students and formulating the lesson plans and class objectives. [round one]

I still rely on the experience gained from the TA Seminar as it prepared me for certain situations and allowed me to be comfortable teaching a large group of students. [round two]

The TA Seminar gave me the confidence to teach a class and got me comfortable with standing in front of an entire class to educate them. [round three]

Gargi. She responded with comments on the seminar only in round one. The following passage from her journal clearly reflects themes three and five:
The TA Seminar made it easy for me to make quizzes. I try to use the format that we were familiarized with during the seminar. I add some
questions that make students think, some that are direct answers, and others that they should be able to answer if they had read their lab materials. The seminar also made me more comfortable about delivering my presentations to the class. I try to keep them short, specific, and interesting.

Kalpesh. He responded with comments on the seminar in all three rounds. The following passages from his journal clearly reflect themes one and four:

I do not honestly rely on a great deal of the information which I received during the TA Seminar. I however feel that the microteaching sessions were very very useful in helping me settle and test out my teaching abilities in a pressure-free environment. [round one]

I honestly do not rely too much on what I learnt in the TA Seminar but the microteaching and feedback I got then has been very useful. [round two]

I do not think I am relying on information from the TA Seminar too much. [round three]

Randal. He responded with comments on the seminar only in rounds one and three. The following passages from his journal clearly reflect themes four and five:

The TA Seminar gave me the opportunity to perform some trial lectures which has helped me by improving my confidence as well as giving me an
opportunity to test out some of my lecture in front of a “practice audience”
before the real thing. [round one]

The TA Seminar gave very good guidelines regarding a general
methodology and approach to the teaching environment. The concepts
taught in the seminar helped in specific ways such as making sure that the
tests and assignments reflected the teaching and vice versa. [round three]
Chapter 5
Summary and Implications

Introduction

The structure of this chapter is based on the advice of Wolcott (1990) in that I will describe what I have done, discuss what I have learned, and share what questions have remained or emerged after having performed my research. The chapter is divided into three sections: a summary; a discussion of implications for theory, research, and GTA professional development; and an exploration of questions for future research. With regard to the summary of a qualitative study, Wolcott (1990) offered the following:

A summary can provide a careful, conservative way to conclude on a strong note. It allows a review of what you have done in terms of your original statement of purpose. It also provides an opportunity to anticipate critical reaction by pointing out shortcomings, discussing how you might have proceeded now that you are a bit older but wiser. (p. 57)

Summary

The summary is partitioned into four main parts: an overview of how I conducted the study, a review of my findings in relation to each of the research questions, a presentation of the limitations associated with the study, and a brief discussion of some proposed solutions to the problems I encountered.
Conduct of research. The primary purpose of this study was to investigate GTAs’ concerns, self-reflections, and practices while they experienced professional development sequences during the course of their work over a semester. These professional development sequences were: coaching, video playback, and coaching paired with video playback. Coaching was implemented in a responsive manner in that I responded to a GTA’s points of interest without giving any direction of my own. Video playback was implemented by providing GTAs with a DVD recording of their instruction and by having them watch the video to reflect on their teaching. The last professional development sequence was a combination of the first two.

I observed each of the participants, except the comparison group participants, three times over the course of 1 semester—mostly either weekly or biweekly. At the end of each observation, I asked the GTAs to complete the reflection journal that corresponded with their observation. The data I collected included observation sheets, reflection journals, videos (when the GTA was filmed), interviews (when the GTA was interviewed), and student evaluations (when provided by the GTA or supervisor). The final piece of my data points, the TCQ, was administered on ANGEL to all participants before the study began and after it concluded.

Findings in relation to research questions. The theoretical frameworks that I relied upon in this study were Fuller’s (1969) stages of professional development, reflective practice, sociocultural, and social cognitive theory. In this
subsection, the four research questions I developed with the guidance of these frameworks are followed by the findings that relate to each respective question.

**Research Question 1: In what way(s) did a professional development sequence for the four GTAs who underwent coaching influence their teaching concerns, self-reflections, and practice?** Reese was very positive about the whole experience reporting on the TCQ post-assessment: “By participating in this study, I was more aware of my teaching style, which I think improved my teaching for the whole semester, even for the days I was not observed.” His teaching concerns and self-reflections were at low and high levels during rounds two and three of the study (i.e., self, task, and impact concerns; routine, technical and dialogic reflections). The only change in concerns or self-reflections apparent in the data was that between the low levels in round one and the high and low levels in round two. However, I believe that change was more of a difference of circumstance than influence of coaching. There were no apparent changes in Reese’s teaching practice at any point in the study.

Andrea was very positive about coaching, reporting on the TCQ post-assessment: “It was really helpful to discuss the labs with someone and get feedback on how they were going.” Her teaching concerns and self-reflections were mostly at low levels throughout the three rounds of the study. The only change in concerns or self-reflections apparent in the data was when she reflected at a high level and had an impact concern during round two. However, it is unclear whether
this change had anything to do with the influence of coaching. Andrea changed her practice in public speaking to be more organized over the course of the study. These changes could be attributed to the influence of coaching because she referred to me as having requested some of these changes she made. For instance she wrote, “I found some benefit from looking at the printouts of the presentation as you had recommended.”

Sharad was very positive about the whole experience reporting on the TCQ post-assessment: “I realized how I'm doing as a TA, it was like a self reflection. As a beginner, it was very, very important for me to get feedback.” His teaching concerns and self-reflections were at low levels throughout the three rounds of the study, so no changes were observed in either concerns or self-reflections over the course of the three rounds. There were no apparent changes in Sharad’s teaching practice at any point in the study.

Renee was most responsive to social exchanges during the experience, reporting on the TCQ post-assessment:

I think when I was told that the observer liked the way I asked questions or tried to involve the students more in a discussion, it influenced me to try to do this more. Other than that, I didn’t get very much else out of it.

Her teaching concerns and self-reflections were at low levels throughout the three rounds of the study, so no changes were observed in either concerns or self-
reflections over the course of the three rounds. There were no apparent changes in Renee’s teaching practice at any point in the study.

**Research Question 2: In what way(s) did a professional development sequence for the four GTAs who underwent video playback influence their teaching concerns, self-reflections, and practice?** Yashraj was very honest about the whole experience reporting on the TCQ post-assessment: “I did get some feedback from myself when I watched the videos but I think it would have been better if I was evaluated by others.” His teaching concerns and self-reflections were mostly at low levels throughout the three rounds of the study. The only change in concerns or self-reflections apparent in the data was when he reflected at a high level and had an impact concern during round two. However, it is unclear to me whether this change may or may not have been influenced by video playback. There were no apparent changes in Yashraj’s teaching practice at any point in the study.

Catrina was very honest about the whole experience writing in her second round reflection journal: “The hardest part about teaching isn’t what I see on the videos, so it’s not really that informative for me to watch them.” Her teaching concerns and self-reflections were at high levels in rounds one and three of the study. The only change in concerns or self-reflections apparent in the data was when she had lower-level concerns and self-reflections during round two. However, it is unclear to me whether this change had anything to do with the influence of
video playback. There were no apparent changes in Catrina’s teaching practice at any point in the study.

Robert was positive about the whole experience, reporting on the TCQ post-assessment: “I do realize, after watching the video of class, that sometimes when in the projector-type classrooms, I need to speak up more.” His teaching concerns and self-reflections were at low levels throughout the three rounds of the study, so no changes were observed in either concerns or self-reflections over the course of the three rounds. There were no apparent changes in Robert’s teaching practice at any point in the study.

Ruth was very honest about the professional development sequence stating on the TCQ post-assessment: “I’ve gotten to see myself teach on video, but it is not very beneficial. I can see the behavior that needs to be corrected, but I have no idea how to correct it.” Her teaching concerns and self-reflections were at low levels throughout the three rounds of my study. There were no observable changes in Ruth’s teaching practice.

**Research Question 3: In what way(s) did a professional development sequence for the five GTAs who underwent coaching paired with video playback influence their teaching concerns, self-reflections, and practice?** Karen was positive about coaching paired with video playback reporting on the TCQ post-assessment: “I enjoyed telling you about my experiences and getting your feedback.” Her teaching concerns and self-reflections were mostly at low levels
throughout the three rounds of the study. Karen changed her practice in teaching to be more organized over the course of the study. The changes could be attributed to the influence of coaching paired with video playback because she referred to seeing the problem on the video which she addressed. For instance she said, “Actually seeing how confused groups were was also enlightening. I believe it will be useful from now on to provide an outline for the day on the board.”

Ray was positive about the whole experience reporting on the TCQ post-assessment: “Everything was great. The camera wasn’t distracting (which was a slight concern at the time) and I honestly gained a lot from the entire experience and would definitely do it again if I had the opportunity to do so.” His teaching concerns and self-reflections were mostly at low levels throughout the three rounds of the study. The only change in concerns or self-reflections apparent in the data was when he reflected at a high level and had an impact concern during round two. However, it is unclear to me whether this change had anything to do with the influence of coaching paired with video playback. There were no apparent changes in Ray’s teaching practice at any point in the study.

Gargi was very positive about coaching paired with video playback reporting on the TCQ post-assessment:

I learned a lot from watching my own videos. Talking to Angela was very useful. She saw the problems in my class and helped me correct them. She
told me that I was teaching fine, so it improved my confidence in my own skills.

Her teaching concerns and self-reflections were at low levels during rounds one and three of the study. The only change in concerns or self-reflections apparent in the data was when she reflected at a high level and had an impact concern during round two. However, it is unclear whether this change had anything to do with the influence of coaching paired with video playback. There were no observable changes in Gargi’s teaching practice.

Kalpesh was positive about the whole experience reporting on the TCQ post-assessment: “The main purpose of my involvement in this study was to watch videos of my teaching and these have been invaluable to me in assessing myself as an instructor. Also I have gotten good feedback from you regarding the same.” His teaching concerns and self-reflections were at low levels throughout the three rounds of the study. There were no apparent changes in Kalpesh’s teaching practice at any point in the study.

Randal was very positive about the whole experience reporting on the TCQ post-assessment: “I got an opportunity to see myself from the perspective of the class attendee and made some corrections to my teaching style due to that observation.” His teaching concerns and self-reflections were at high levels throughout the three rounds of the study, so no changes were observed in either
concerns or self-reflections over the course of the three rounds. There were no apparent changes in Randal’s teaching practice at any point in the study.

*Research Question 4: What similarities and differences, if any, are apparent in analyses of the perceived influence of coaching, video playback, and coaching paired with video playback on teaching concerns, self-reflections, and practice?* Due to differences among members within a group that were established in the baseline and that emerged during the study (Table 4.44, p. 334), I was unable to make clear comparisons between groups or to develop any well-supported claims about the perceived influence of the professional development sequences on teaching concerns or self-reflections. However, it is worth noting that at least two of the members of the video reflection group mentioned the difficulties associated with the absence of an experienced coach, while the members of both professional development sequences groups exposed to coaching provided some indication of how they benefitted from that coaching.

There was a unique case in each professional development sequence group that had high-levels of concerns and self-reflections on more than one occasion (i.e., Reese, Catrina, and Randal). This unique case in each group gave me reason to look at BIS data to investigate if any other factors could have influenced or contributed to this outcome. I found two possible factors that might have influenced their concerns and self-reflections: educational course history and subject maturity. Both Catrina and Reese had taken educational courses prior to this study. Further,

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both Catrina and Randal were older and more mature students. In addition to these three professional development sequence subjects, Matthew, a comparison subject, also was found to have high levels of concerns and self-reflections. He, too, was a more mature participant in this study.

The 10 other participants in the professional development sequence groups had predominantly lower-level teaching concerns and self-reflections. Frequently these participants experienced two levels at the same time: self and task concerns, and routine and technical self-reflections. The lower performing participants had two things in common with the unique cases: experiencing self and task concerns and engaging in routine and technical self-reflections simultaneously, and having the concern about balancing roles and/or managing time. All 13 professional development sequence participants referred to having concerns about balancing roles and/or managing time at some point during the study.

Only two people made changes to their teaching practice in my study (Table 4.46, p. 338). In the coached group, Andrea made changes to the way she presented materials in class. In the coached video playback group, Karen changed her informal way of teaching to be more formal.

These outcomes prevent me from making any claims about the perceived influence of the professional development sequences on teaching practice. However, it is important to note that Andrea and Karen were the only U.S. females
with little teaching experience in groups receiving coaching other than Renee, who was motivated to participate in my study by the financial incentive.

**Study delimitations.** Several self-imposed restrictions, which will limit the generalizability of my study findings, were present in my study.

They are as follows:

1. **Study location.** My study took place on the Florida Tech campus, which may limit transferability. Florida Tech is the only independent technological university in the southeast with an enrollment of 16,000 students during the 2012-2013 academic year. Fifty-one percent of the enrollment attends school on campus; 38% attend online; 11% attend the extended campus. The university is divided into 5 colleges listed hereafter followed by their percentage of the enrollment: College of Engineering, 55%; College of Science, 15%; College of Aeronautics, 8%; College of Business, 10%; and College of Psychology and Liberal Arts, 10%.

2. **Duration of study.** The treatments occurred three times over the course of the Fall 2012 semester after the participants completed the GTA Seminar and had commenced practicing their Teaching Assistant roles. Any claims about the outcomes of the professional development sequences employed in my study will be limited to this frequency of use.
3. **Selection of teaching assistants.** The eligibility criteria to participate in my study ruled out some of the GTA Seminar participants, including those who did not obtain TA contracts for Fall 2012 and those whose GTA responsibilities did not include teaching in classroom or lab settings.

4. **Teacher concerns questionnaire.** The Teacher Concerns Questionnaire (TCQ; Fuller & George, 1978) was utilized to assess the Teaching Assistants’ concerns about teaching before the treatments were started and after they were completed.

5. **ANGEL data collection.** ANGEL was the platform to support the collection of data from TAs, including the following: TCQ responses, reflective journal entries, and BIS responses.

**Study limitations.** Limitations, which mark the boundaries of this qualitative study, are a part of all educational studies and limit the generalizability of a study's results. There were 10 limitations for my study. These are listed here numerically for the next few pages.

1. **GTA recruitment.** In this study, I relied on a voluntary group of GTAs for my sample. I had great difficulty in recruiting participants because many of the GTAs who had attended the GTA Seminar saw themselves as too busy to deal with participation in the study and were potentially disinclined to be observed in their work. I believe the description of study proceedings may
have given an impression of more work than what was actually required.

For instance on the TCQ post-assessment, 6 of the 13 professional
development sequence participants (Sharad, Robert, Renee, Ray, Reese, and
Karen) mentioned how the study wasn’t stressful, burdensome, time-
consuming, or distracting—giving me the impression that they probably
anticipated such things of the study beforehand. The following statements
from Karen and Reese sum up these thoughts:

I thought I would have to meet up with someone and do worksheets,
or maybe have to devote too much time. When I found out you were
going to be recording, I feared that I would notice you too much.
That wasn’t the case, however. [Karen]

Coming into this study, I was anticipating a lot of extra work to fully
evaluate each class I taught. However, it was not too much extra
work, and I found it easy to complete the information needed for the
research. I also expected to be more nervous teaching in front of
Angela, but she did a good job at being an observer and I found
myself teaching the same way as normal if she wasn’t there, which
would get the best representation of my teaching. I also expected to
come out of it with a better understanding of teaching to college
students, and I think that is something I gained from this semester
and this study. [Reese]

To overcome these impressions, I offered an incentive in an attempt to
increase the number of GTAs willing to participate in my study. Although
my final sample consisted of a diverse group of GTAs from a transferability perspective, the extent to which this sample was representative of the target population remains problematic. As a result, subsequent replication studies might not get similar results if the recruitment procedures and sample are not similar to those in this study.

2. *Data collection concerns.* I had trouble collecting observations of GTAs under pre-specified time intervals, obtaining prompt responses to reflection journals from the GTAs, collecting observations of the same class section for each of the three observation times, holding pre-observation interviews, and collecting observations of one participant more than the three pre-specified times.

- I had issues scheduling my observations for 2-week intervals regarding every GTA. The issue would occur in one of two ways: the GTA was not instructing for the class I anticipated viewing or there were issues with the GTA’s schedule.

- Every GTA had a lag time of response to reflection journals. Seventy-four percent (74%) of the time GTAs submitted their reflection journals a week or more after being observed. The most time that had lapsed between an observation and a reflection journal submission was a month.
• I observed different class sections because of scheduling problems for 4 out of 13 of the GTAs: Renee, Karen, Sharad, and Robert. Pre-observation interviews were difficult to obtain with GTAs because of their cramped schedules, so I often had to forgo holding the interviews.

• Finally, I had observed Renee four times because my third observation wasn’t usable because she didn’t teach that time. As a result, subsequent replication studies might not get similar results unless similar data collection circumstances occur with GTAs.

3. Instrument and data analysis issues. These issues involved missing or unclear responses to important background information questions, unclear differentiation between task concerns and impact concerns, and lack of agreement between the TCQ and reflection journals.

• The Background Information Survey neglected to collect important teaching background information from at least two participants: Reese and Catrina. In Reese’s case, I discovered during his round-three interview that he had experience as a camp counselor as well as having taken an education class in his senior year of undergraduate school. In Catrina’s case, I discovered during my
review of her round-two journal that she had taken two education classes: College Teaching and Instructional Design.

- Differentiating between task concerns and impact concerns was somewhat perplexing on occasion when I was performing the concerns and self-reflections analyses on the GTAs’ reflection journals. This confusion is what Floden and Feiman (1980) were referring to when they discussed the need for specificity regarding impact concerns. In my case, the Ward and McCotter (2004) instrument helped me overcome this confusion and provided me with the specificity I needed. I interpreted GTAs’ concerns of students getting good grades or giving correct responses without considering student learning to be task concerns. If the GTAs’ concerns related to figuring out how to help struggling students, how students are learning, or how the students’ learning applies to the future, then I would regard those concerns as impact concerns.

- When comparing the TCQ to reflection journal responses, I found that most of the participants had only partial consistency between the teaching concerns expressed in their journal entries and those in their TCQ responses (i.e., consistency for 9 of 13 participants). However, for four participants, there was little to no apparent agreement between their reflection journals and TCQs (i.e., Sharad, 358
Ray, Gargi, Kalpesh)—4 out of 5 of the international GTAs who were all coached. The fifth international GTA, Yashraj, was in the video reflection group and did not receive any coaching.

As a result, subsequent replication studies might not get similar results unless similar background information is collected about GTAs and similar distinctions are made between task concerns and impact concerns.

4. Technical issues. The technical issues that occurred were few, but noteworthy.

- Renee and Yashraj had difficulty using ANGEL to submit their work and had to email their journal submissions to me. I found that if links to surveys and journals did not reliably work, it was most likely either browser issues or the need of the participant to log-in to ANGEL before accessing the link.

- I found also that my camcorder sound might have been poor—particularly in Ruth’s and Kalpesh’s classrooms. I tried to sit in the back of class so students wouldn’t take much notice of me, but then would find the sound quality was poor, so I had to sit at least in the middle or front of the class.

As a result, subsequent replication studies might not get similar results unless they have similar technical issues to those in this study.
5. *Hawthorne effect*. The Hawthorne effect was another concern regarding behavioral problems during the study. The Hawthorne effect occurs when subjects “change their behavior just because of the attention gained from participating in an experiment” (p. 301, Ary et al., 2006). Evidence of the Hawthorne effect in my subjects presented itself in one of two ways: eagerness to perform research duties and willingness to help out a fellow graduate student (me).

- Ray and Yashraj both seemed to be eager to perform research duties—Ray having interrupted another participant’s interview to tell me he was free to meet with me for his interview and Yashraj notifying me on one occasion that he was concerned I did not observe him and another that I was late to his class.

- Three of the professional development sequence participants (i.e., Randal, Catrina, and Robert) appeared to reflect motives similar to Good Samaritans and because they mentioned in some way that they participated in this research on my behalf. I believe that others participated for the same reason, but did not make it known. For instance, Andrea participated despite the serious misgivings she admitted to in the following statement from the TCQ post-assessment: “I wasn’t exactly sure what to expect with this study. I was really concerned about performing poorly in front of an
observer and risking the loss of my TA position.” Further, 77% of
my participants did not immediately respond to my solicitations for
participants. However, these participants responded when I
remarked that I only had two people who agreed to participate.
As a result, subsequent replication studies might not get similar results
unless they have similar issues with the Hawthorne effect to those in this
study.

6. **Student evaluations.** The availability of student evaluations to Teaching
Assistants varied depending on the academic department norms of dealing
with that information. For example, some departments did not have students
evaluate their GTAs separately from the professors who led the class. As a
result, subsequent replication studies might not get similar results unless
GTAs have similar access issues to student evaluations as those GTAs in
this study.

7. **Subject.** The subject the GTAs taught varied from GTA to GTA. It
depended on who volunteered for my study as to whether or not I could
achieve an even spread of disciplines across my three treatment groups and
comparison group. As a result, subsequent replication studies might not get
similar results if the GTAs teach subjects different than what was taught in
this study.
8. **Instructional schedule.** The instructional schedules varied from GTA to GTA. Some of them taught twice a week, others taught once a week. As a result, subsequent replication studies might not get similar results if the GTAs do not follow instructional schedules similar to what was followed in this study.

9. **Class time duration.** The class time duration for the GTAs varied depending on their assignment, their pace, and their students. For example, some GTAs taught labs that lasted 3 hours, while others taught classes that 1.5 hours. As a result subsequent replication studies might not get similar results if the GTAs do not have class time durations similar to those in this study.

10. **Classroom setting.** The classroom settings were varied and diverse. For example, GTAs taught in laboratories, the field, computer labs, and lecture settings. In one particular case, Karen’s, I observed that she had students from other GTAs’ classes join her class so that they could make up the lab they skipped earlier in the week. Further, Renee taught in the laboratory as well as field and lecture settings. As a result, subsequent replication studies might not get similar results if the GTAs do not have classroom settings similar to those in this study.

**Modifications suggested.** Now that I have concluded my study, I have given much thought as to what I would do differently should I perform a study of
this kind again. I realize that some of the issues I had could not be avoided or prevented (e.g., students from other GTAs’ classes attending one of my participant’s class, my participant teaching in different classroom environments); however, I do believe that some of the problems could be prevented or at least minimized.

First, I would provide a better description of my research so that the seminar attendees would better understand what work would be required of them. Second, to prevent or decrease data collection issues, I would either add more researchers to perform research work and/or start earlier in the semester to make data collection easier to accomplish. Third, I would revise the Background Information Survey so there are questions asking about the participants’ course history with regard to education classes (e.g., how-to-teach classes) and their public speaking history with regard to experience (e.g., camp counselor, Scouts leader). Fourth, I would revise the Teacher Concerns Questionnaires so that they are either written in more simple language or have examples of what the statements are referencing. Fifth, I would create a reminder that I would repeatedly use: one that reminded participants of the need to log in to ANGEL before clicking on any email links. Finally, I would purchase a camcorder with better sound capability.

**Implications**

**Implications relative to theory.** In differing ways and to differing degrees, this study was informed by Fuller’s (1969) concerns theory, reflective practice,
sociocultural theory, and social cognitive theory. Fuller’s (1969) theory describes the development of teachers in the form of three stages of concerns: Self; Task; and Impact. The self stage deals with teachers’ concerns with regard to their acceptance and credibility as a teacher. The task stage involves teachers’ concerns with classroom management and procedures. Finally, the impact stage is viewed as the most superior of the three stages because teachers’ concerns are focused on student learning gains and self-evaluations are based on those gains. Based on Fuller’s theory, I anticipated that all beginner GTAs would start this study with self concerns, progress to task concerns, and then, if time and developmental ability permitted, progress to the impact concerns.

This study’s findings were somewhat consistent with Fuller’s (1969) theory. All 13 of the professional development sequence participants had self concerns at the baseline—during the seminar. However, contrary to theory, they were experiencing and expressing task concerns to the same extent as well. Also contrary to theory, Catrina and Randal experienced impact concerns as early as the first round of this study. Additionally, Reese had impact concerns beginning in the second round of this study. These inconsistencies with theory could be grounded in the GTAs’ multi-role status, the pre-organized nature of their work, and/or their level of maturity and/or educational course history.

The GTAs who participated in this study were obligated to juggle four roles: teacher, student, researcher, and research participant. The necessity of the
GTAs dealing with multiple roles required them to efficiently deal with time management—a task concern. All of the GTAs at one point or another during this study referred to this issue of balancing roles or managing time. Although this multi-role status was a singular task concern, it weighed very heavily on the GTAs. Further, in the interest of preserving time, GTAs might have been less likely to allow themselves to focus solely on self concerns or even start to consider any impact concerns. Renee captured this sentiment in the following excerpt from her journal:

I think I need improvement in the area of presenting subject matter [self concern]. I am only doing an adequate job. I should improve so that I am actually doing a good, even great job. But if I can get away with adequate and still get paid, I’ll stay with adequate—simply because of time constraints.

Ruth’s comments in her round two and three journals also support this view:

I feel like I teach the same way virtually all of my mathematics teachers taught during my undergrad. Most of the professors here teach the same way. I’ve only seen two math professors who teach differently here. They more or less have conversations about mathematics with the students. However, this does not really work. While the conversations help the students understand the theory [impact concern], they still have no idea how
to solve the problems. These conversations take up more class time and fewer examples are demonstrated. [round two]

The biggest challenge has been time management, being able to prep for calculus 2, PDE course, and my 3 graduate classes. I feel like with everything going on I have been a lackluster student and an average TA. [round three]

The pre-organized nature of many of the GTAs’ classes might have been another factor that led them to think about task concerns in addition to self concerns. Sharad’s statement from his round two interview provides some evidence of this:

I do not have any concerns for my teaching because of the aid my supervisor provides. My supervisor meets with the Chemistry TAs before each module to explain the labs and what to expect from students [task concerns]. I feel well prepared as a TA going into lab [self concern].

Further, the background information of GTAs provided insight to what factors could be contributing to the high-level concerns of Reese, Catrina, and Randal. For instance, Catrina and Randal were more mature than all of the rest of the participants. Further, Catrina and Reese had both taken education courses before taking part in this study.
In reflective practice, a person understands a situation from his/her own perspective or reframes to look at it through another person’s eyes (Schön, 1983). Based on reflective practice theory, I anticipated that all beginner GTAs would start this study with a routine level of self-reflection, progress to technical level of self-reflection and, if time and developmental ability permit, progress to the dialogic level of self-reflection. However, this study’s findings were only somewhat consistent with theory. Many of the GTAs were already reflecting at a technical level at the baseline and round one of this study. A few were even reflecting at a dialogic level early on—in the baseline or round one. Because of the close relation between the Ward and McCotter (2004) instrument and the stages of concern, the implications for reflective practice are essentially the same for Fuller’s (1969) theory.

Sociocultural theory centers around the zone of proximal development, which is the range of ability that spans between what a person can do on his/her own and what a person can do with guided assistance (Vygotsky, 1962). Based on sociocultural theory, I anticipated that all beginner GTAs who were coached would be able to progress to higher levels of concerns and self-reflections and make changes to their teaching practices.

This study’s findings were inconsistent with this aspect of sociocultural theory. At least two participants from the video reflection group mentioned how they felt the absence of a coach. However, there was little other evidence to support
any impact of coaching. There were no similarities within groups to support and justify comparing teaching concerns, self-reflections, and practices between groups to establish any benefit to coaching.

Social cognitive theory rests on the basis that learning is about making mental gains (Bandura, 1977). Under social cognitive theory, self-regulation is defined as having four processes: setting goals and standards, observation, self-evaluation, and self-reaction. Although the implementation of the reflection journal was unstructured, the participants in the video reflection group had the opportunity to apply self-regulation during the course of this study. Based on social cognitive theory, I anticipated that the video reflection GTAs would be able to progress to higher levels of concerns and self-reflections and/or make changes to their teaching practices by applying the principles self-regulation.

This study’s findings were inconsistent with several aspects of social cognitive theory. The participants did not receive any direction or scaffolding on how to self-regulate, which may be a reason why three out of four people in this group reported that the professional development sequence was lacking. Of the four processes of self-regulation, the video reflection participants received a means to self-observe and self-evaluate, but it is unclear whether they recognized the relevance of setting personal goals and standards, or self-reacted. Further, as voiced by Ruth, even if members of this group were cognizant of the need to set goals and were willing to do so, they may have lacked sufficient information and/or
experience to shape either an appropriate and realistic goal, or a plan to achieve it. This is where an experienced coach or some form of training and guidance (i.e., scaffolding) might have been useful. Finally, there were no other apparent similarities within groups to justify comparing teaching concerns, self-reflections, and practices between groups to establish any benefit resulting from any incidents of self-regulation.

**Implications relative to prior research.** The implications presented in this section represent a comparison of this study’s findings to those of prior research. This section is partitioned into implications relative to: literature review studies, Fuller’s (1969) theory, reflective practice, sociocultural theory, and video studies.

*Literature review studies.* In their critical review of postsecondary research, Levinson-Rose and Menges (1981) recommended that more attention be given to individual differences instead of treating the participants as a homogenous group. This study is consistent with their recommendation in finding that Catrina’s and Randal’s maturity, and Catrina’s and Reese’s pedagogical backgrounds both seemed to have a positive influence their teaching concerns.

*Studies involving Fuller’s (1969) theory.* Ferzli et al. (2012) investigated how the amount and type of training affect a GTAs’ progression through the stages of concern and what general teaching concerns they have. This study is somewhat consistent with Ferzli et al. For instance, Ferzli et al. found evidence that suggested that GTAs who have some sort of pedagogical background tended to be farther
along in their progression of Fuller’s (1969) stages. Catrina and Reese, both having taken an education class prior to this study, had impact concerns on more than one occasion.

Another finding from Ferzli et al. was that although GTAs who received training made progress toward impact stage, they continued to struggle with lower stages. This study is consistent with this finding as all 13 professional development sequence participants frequently experienced self and task concerns at the same time—even when they had impact concerns.

Ferzli et al. (2012) interpreted low collaboration scores to time management issues as respondents working alone in isolation to address time management issues. Given that 10 of 13 participants remained in the lower levels of self-reflections, meaning that they did not seek help from outside resources (e.g. professors, other GTAs), and all 13 participants had time management concerns, this study is consistent with Ferzli et al.’s finding.

According to Ferzli et al. (2012), GTAs stressed the importance of having someone with whom to discuss their teaching experience and obtain support in reflective practice. The video reflection group participants in this study provided similar feedback on their professional development sequence. The majority of them needed an expert to work with during this study. This is consistent with Ferzli et al.’s finding.
The other two studies based on Fuller’s (1969) stages, Cho et al. (2011) and Feezel and Myers (1997), developed teacher concerns questionnaires more specific to GTAs. Both of these studies added or modified Fuller’s stages based on their research. Feezel and Myers added a role conflict stage. Cho et al. added a role/time/communication stage. This study is consistent with both of these studies in that all 13 professional development sequence participants mentioned at minimum during one point in the study how they had difficulty managing their different roles and/or time.

Cho et al. (2011) also found that the GTAs’ characteristics, specifically teaching experience, professional development, value on teaching, and teacher efficacy, had differential influences on their teaching concerns. For instance, GTAs were more likely to have impact-related concerns when teaching issues were seen as valuable and manageable. This study is somewhat consistent with this finding in that Catrina’s and Randal’s maturity, and Catrina’s and Reese’s pedagogical backgrounds, seemed to have a positive influence their teaching concerns.

*Studies involving reflective practice.* Supko (1997) qualitatively investigated the nature of reflection of four volunteer beginner GTAs of Spanish. Supko found that the GTAs’ reflections involved concerns that were similar to teachers in the survival (self) stage (Fuller & Bown, 1975). This study is somewhat consistent with this finding in that all of the professional development sequence
GTAs had self concerns throughout the study. However, they had task concerns throughout the study as well.

**Studies involving sociocultural theory.** Trouba (2009) implemented a mixed-methods study that had the purpose of: determining the effectiveness of a GMTA teacher training workshop, determining the effectiveness of peer coaching and observation as a follow-up to training, and discovering what needs adjusting in the K-12 professional development models to suit GMTAs. Before comparing my findings to Trouba’s, it is important to note that our studies were very different. For instance, Trouba used peer-coaching, which requires more work, effort, and cooperation on the GTA’s part. Also, the GMTAs’ observations in Trouba’s (2009) study were of other people and not themselves. Bearing these factors in mind, this study’s findings were inconsistent with Trouba’s finding that observations were more beneficial than coaching as a means of professional development.

One of the cases in this study, Renee’s case, is consistent with Trouba’s (2009) most critical construct of effective coaching—an interest in improving one’s teaching. Renee agreed to participate in my research solely for the monetary incentive as she indicated in the following: “I didn’t have any expectations of getting anything out of it [the study] to benefit my teaching or anything. All I really anticipated/wanted from it was to get the money at the end really.” At the end of the study she said that the observer encouraged her to involve the students more in class discussion, but other than that she didn’t get very much out of it. Her case is a
clear example of a GTA needing the motivation to improve her teaching for coaching to have any substantial impact or influence on her teaching.

**Video studies.** In Fuller and Manning’s (1973) review of video playback practices, they determined that the facilitator of video playback needs to have certain qualities to be effective, otherwise known as CARE: Communicated Authenticity, Regard for the other person that is positive, and Empathy. This study is somewhat consistent with this concept in that the two participants who made changes to their teaching practices were U.S. female graduate students participating in groups that received coaching (i.e., other than Renee who was motivated to participate in my study because of the financial incentive). Quite possibly, these women saw me as a fellow female U.S. graduate student with whom they could identify and recognize as having the CARE qualities.

Tripp and Rich (2012b) reviewed 63 studies to help educators make more informed decisions about how to set up video self-confrontation professional development sequences. In this review, a recurring theme emerged: teachers preferred reflecting on their teaching experience with other people. This study is consistent with this theme in that the feedback from all of the professional development sequence participants about their professional development sequences was for the majority positive. At the same time, the video reflection group had three of four people who expressed disappointment in their professional development sequence due to the lack of interaction with an expert.
Implications relative to educational practice. The findings from this study have important implications for educational practice. First and foremost is the issue of dealing with the time constraints and time management concerns of GTAs. Given that balancing roles and time management was one of the greatest pressures on GTAs, professional development coordinators who hold professional development sequences during the semester may have difficulty in obtaining their GTAs’ voluntary participation and/or full commitment. It appears as if attention to these constraints and concerns is necessary to garner GTA cooperation and to have any impact on these GTAs.

A second implication for practice pertains to background information. GTAs come into their positions with various kinds of backgrounds that may very well impact the outcome of a professional development sequence. As a result, the data may be skewed on the basis of background information, as was apparent in the unique cases involved in this study. Therefore, any evaluation of professional development sequences must account for this, as it may be counterproductive if those factors are not accounted for.

A third implication for educational practice pertains to the GTAs’ courses being pre-organized. The GTAs had difficulty implementing professional development strategies when they felt they could not divert from their respective academic unit’s prescribed plan or procedure for the conduct of a lesson. For instance, Andrea responded to one of my suggested changes with the following:
I would, but I am concerned about changing anything because the quizzes are linked to the presentation and the other TA did the same presentation to keep the labs consistent.

A fourth implication for educational practice pertains to self-regulation. It is apparent that GTAs have difficulty self-regulating without some sort of scaffolding. Scaffolding may be in the form of having a coach, a specific type of coaching implementation, or training and written guidelines on the self-regulation process. Which form of scaffolding may be best for some or all GTAs is yet to be determined. However, three of the four members of the video reflection group mentioned the desire to have an expert with whom they could consult. With regard to consultation, it is important to note that 8 out of 13 professional development sequence participants gave positive feedback about the microteaching sessions of the seminar, which were sessions that provided consultation from experienced GTAs or faculty members to these GTAs on their teaching before they began their assignments.

Lastly, and perhaps most importantly, a fifth implication for educational practice pertains to the value of professional development opportunities to GTAs. The 13 GTAs involved in professional development sequence groups in this study all had positive comments about the GTA Seminar. Further, 9 of the 13 were pleased with the professional development sequences of this study, including the majority of the two professional development sequence groups that were coached.
Two participants, Renee in the coached reflection group and Yashraj in the video reflection group, seemed to have mixed feelings about their satisfaction with the professional development sequence. Belonging to the video reflection group, Ruth and Catrina desired expert consultation, so they were not pleased about their professional development sequence. None of the GTAs mentioned either the GTA Seminar or this study being useless or a waste of time—even though they were all very busy with their multiple roles.

**Questions for Future Research**

My qualitative investigation has provided the outcomes of GTAs’ teaching concerns, self-reflections, and teaching practice when exposed to three different professional development sequences following the GTA Seminar: coaching, video playback, and coaching paired with video playback. In the process of performing this research, other questions have emerged and include the following:

1. In what ways, if at all, do GTAs’ participation in the GTA Seminar influence GTAs’ teaching confidence and teaching self-efficacy? Which skills taught during the GTA Seminar are used by GTAs’ during their work?

2. In what ways, if at all, would coaching, video playback, and coaching paired with video playback influence GTAs’ teaching confidence and teaching self-efficacy?
3. In what ways, if at all, would GTAs’ learning styles (Kolb, 1984) influence GTAs’ teaching concerns, self-reflections, and practice when participating in one of the following professional development sequences: coaching, video playback, and coaching paired with video playback?

4. In what ways, if at all, would the use of video playback influence GTAs’ teaching self-efficacy during the microteaching sessions of the GTA Seminar?

5. In what ways, if at all, would coaching, video playback, and coaching paired with video playback influence GTAs’ teaching concerns, self-reflections, and practice over a longer period of time (e.g., a period of 1 year, 2 years, and/or 3 years)?

6. In what ways, if at all, would cognitive coaching compare to responsive coaching regarding the outcomes of teaching concerns, self-reflections, and practice?

7. How would GTAs understand, interpret, and employ the Ward and McCotter (2004) rubric?

8. In what ways would various approaches to scaffolding enable GTAs to engage more fully and more efficiently in self-regulation regarding their teaching concerns, self-reflections, and practices?

9. What are the most effective online and/or in-person methods for providing teaching professional development consultation to GTAs?
Many of the questions and concerns in this qualitative study warrant further investigation. Possible research questions for follow-up studies include the following:

1. What is the current state of teaching performance feedback that GTAs across campus receive? Further, how does that differ by department?

2. How interested are GTAs and their supervisors in improving their teaching and teaching professional development opportunities during the school year?

3. What are the comparative advantages and disadvantages to have GTAs observe themselves teach versus observing beginner GTAs teach, experienced GTAs teach, and/or professors teach?

4. How does the behavior of the GTA and his or her students differ when being videotaped by a hidden camera versus a visible camera?

5. How do GTAs reflect with written guidance as compared to in collaboration with others?
References


Appendix A

Literature Review Documents

A1  Coding scheme of dissertation and thesis studies, p. 410
A2  Theoretical framework based on literature review, p. 419
A1 Coding scheme of dissertation and thesis studies

A. Population(s) (check all that apply)
   ___ TAs [go to J.]
   ___ Graduate Teaching Assistants
      ___ International GTAs
      ___ American GTAs
   ___ Undergraduate TAs
   ___ Faculty
      ___ Faculty who were TAs
      ___ Faculty who support TA training
      ___ Faculty who supervise TAs
      ___ Faculty (undefined)
   ___ Undergraduate Students in TA Classes [go to K.]
      ___ International undergraduate students
      ___ American undergraduate students
   ___ Administrators
      ___ University/College/Dept. administrators
      ___ GTA program administrators
   ___ Other Stakeholders in TA Programs
   ___ Other: __________________

B. Nature of the Study (check all that apply)
   ___ Literature review
      ___ theory/research (meta-analysis)
      ___ practice
   ___ Descriptive Study [go to G. and J.]
      ___ Short-term development (1-3 semesters/1 year)
         ___ Longer-term development (more than 2 semesters/1 year)
   ___ Comparison Study
      ___ U.S. vs. International TAs
      ___ Among GTAs in different U.S. universities
      ___ Among GTAs in different career paths
      ___ GTAs vs. faculty
      ___ Trained GTAs vs. untrained GTAs
   ___ TA Development (Model building)
___ TA teaching practices
___ Program Development (Model building)
___ Instrument Development
___ Program Evaluation
   ___ Evaluation of sources that influence PD
   ___ Evaluation of graduate student orientation program
   ___ Evaluation of TA Training Program
   ___ Evaluation of mentoring program
   ___ Evaluation of peer observation program
___ Effectiveness of TAs
___ Retrospective perceptions of the TA Experience
   ___Preparation for College Teaching (retrospective)
___ Replication Study

C. Research Methods
___ Quantitative
   ___ Survey
   ___ Correlation
   ___ Ex Post Facto or Prediction
   ___ Quasi-Experimental
   ___ True Experiment
___ Qualitative
   ___ Case Study/"Single Subject" (up to n of 6)
   ___ Case Study/Group (n > 6)
   ___ Phenomenology
   ___ Ethnographic
   ___ Grounded Theory
   ___ Naturalistic inquiry
   ___ Ethnography & Phenomenology
   ___ Phenomenology & case study
   ___ Content analysis
   ___ Survey
___ Action Research
___ Mixed Methods
   ___ Direct observations (forms or qualitative)
___ Videotapes
___ Interviews
___ Document reviews
___ Surveys
   ___ TAs (self)
   ___ Peer (other)
   ___ Faculty
   ___ Students

D. Fuller’s Phase (check all that apply)
   ___ Self
   ___ Task (technical)
   ___ Impact (evaluative)
   ___ NA/Unclear

E. Theories, Models, and Frameworks
   ___ Professional Development (PD) Theories
   ___ Tinto’s (1987) theory of departure from college
   ___ Bass’s transformational leadership theory
   ___ Adult Learning Theory

E. Theories, Models, and Frameworks (con’t)
   ___ Knox Proficiency Theory
   ___ Socialization Theory
   ___ Social Cognitive Theory
   ___ Self Efficacy
   ___ Sociocultural Theory
   ___ Social Constructivism
      ___ Peer coaching

___ PD Models
   ___ ARCS model of motivation
   ___ Self-Determination model of motivation
   ___ Model of Explicit Instruction
   ___ Cogan & Goldhammer’s original models of clinical supervision
   ___ Triandis’ (1995) cultural constructs model
Borg's (2006) language teacher cognition model

PD Frameworks

Sociolinguistic Competence

Brown & Levinson’s (1987) theory of politeness [for TAs speech]

McCroskey's Personal report of communication apprehension

Professional Development

Guskey (1999)

Components of Effective PD (Garet et al., 2001)

Communities of Practice Framework (Wenger, 1998)

Five basic processes for training TAs (Strachan et al., 1980)

Teaching

Framework of Pedagogical Content Knowledge (Schulman, 1986)

Universal Design for Instruction (Scott, McGuire, & Shaw, 2001)

Reiser & Dick’s 1996 Six instructional activities

ADDIE model (Branson, Rayner, Cox, Furman, King, Hannum, 1975)

Active learning (Bonwell & Eison, 1991)

Reflective teaching (Dewey)

How people learn

Learning styles

Personal epistemology

Cooperative learning (for Chemistry-Fakhreddine)

F. Subject Area(s)

STEM

Science

Biology

Chemistry

Physics/Space Science

Geology

Other Earth/Marine/Atmospheric Science

Other Science: _______________________

Mathematics

Engineering
___ Technology
___ Social Science
___ Economics
___ Humanities
   ___ Writing/Communications/English
___ Foreign Language (e.g., Spanish)
___ Physical Education
___ Other

G. Nature of Variables (go to J.)
___ Non-workshop
___ Pre-workshop
___ During workshop
___ Post workshop
   ___ Immediately after workshop
   ___ At the conclusion of first semester

H. Nature of Workshop Topics/Variables
___ Age of I/GA Program(s) (e.g., in years)
___ Student Population Served
   ___ Voluntary
   ___ Mandatory
___ Experiential/Developmental Characteristics
___ Age Distribution/Cohorts
   ___ Adult Education
___ Type (whole) and/or Elements (parts)
___ Specific Model of Instruction
___ Department (AU) Socialization
___ Periodic seminars
___ Group meetings
___ Supervision/Mentoring
   ___ Guidance from GTA Coordinator
   ___ Faculty supervisor
   ___ Peer observations/discussions
___ Other
___ Duration (e.g., week, semester-long)
___ Course Content
___ Objectives
___ Teaching Methods
   ___ Interaction with Students
   ___ Leading Discussion Groups
___ Assignments
___ Assessment

I. Nature of Post-Workshop Topics and Methods
   ___ Topics (content)
   ___ Methods
      ___ Self-reflection
      ___ Peer observations
      ___ Mentoring
      ___ Action Research
___ Pedagogy (Dynamic relationship of content/methods)
___ Expectations

J. TA Variables
   ___ Non-workshop-related TA Variables
      ___ Sex/Gender
      ___ Ethnicity
      ___ Country of Origin (non-U.S. TAs)
         ___ Intercultural competence
      ___ Native language/Communications
         ___ Sociolinguistic/communication competence
      ___ Nonverbal cues/behavior
      ___ Location of HIED institution
      ___ Degree Program (Type and Field/Area)
      ___ Salary
      ___ Career/professional goals
      ___ Self-concept/self-confidence
      ___ Locus of control
___ Expectations (of self) as a TA
___ Support for/Perceptions of support for TAs or for good teaching
___ Satisfaction with teaching/role as a teacher
___ TA Experiences
___ Attitudes/Values
   ___ Attitudes toward targeted pedagogical issues
   ___ Attitudes toward academic dishonesty
___ Teaching practices
   ___ Pedagogy
   ___ Small-group
___ Beliefs
   ___ Beliefs about teaching (includes personal epistemology)
   ___ Beliefs about impacts on student achievement
   ___ About potential Impact
   ___ About apparent/apparent impacts (efficacy)
___ Supervisor Variables
   ___ Models good teaching
   ___ Collegial
   ___ Open to discussing course content and teaching methods
   ___ Provides constructive feedback on job performance

J. TA Variables (cont.)
___ Pre-workshop variables
   ___ Prior degree(s)
      ___ Prior TA training
   ___ Prior Teaching Experience
___ Attitudes toward/Beliefs-Perceptions
   ___ Interest in improving own teaching practices
   ___ About teaching/how teachers teach
   ___ About learning/how student learn
___ Workshop variables (e.g., perceptions, knowledge, skills, practices)
   ___ Expectations of TAs in Workshop
   ___ Perception of training
   ___ Attitudes toward/Perceptions of teaching (during/right after)
   ___ Teaching Practices
___ Post-workshop variables
___ Student variables
    ___ Course load
___ TA variables
    ___ TA/Teaching area
        ___ Teaching load
    ___ TA/ Teaching responsibilities (e.g., lecture, recitation, lab)
___ Support/Lack of
    ___ Job satisfaction
___ TA/Teaching perceptions and practices
    ___ Practices
        ___ Communication
    ___ Teaching behaviors
        ___ Adherence to a teaching model
___ Beliefs/Attitudes/Conceptions/Perceptions pertaining to
teaching (well after)
    ___ Beliefs about students
    ___ Beliefs about subject matter
    ___ Beliefs about/attitudes toward Teaching & Learning
    ___ Thoughts about what constitutes a good TA
    ___ Perceptions of teacher effectiveness
___ Beliefs/Attitudes/Perceptions towards themselves
    ___ Confidence/apprehension
    ___ Perceived strengths & weaknesses
    ___ Self-efficacy/effectiveness
___ Overall TA Experience
    ___ Year/Semester in School when GTA began
    ___ Length of time serving as a TA

K. Undergraduate Student Variables
___ Self-related variables
    ___ Demographics
        ___ Age
        ___ Gender
        ___ Ethnicity
___ Hometown size
___ Academic Characteristics
   ___ Year of enrollment
   ___ College/field/program
___ Course-related Characteristics
   ___ Motivation
   ___ Engagement
   ___ Achievement
___ TA-related variables
   ___ Depth of experience with TAs
   ___ Attitudes toward TAs
   ___ Cross-cultural awareness of ITAs
   ___ Attitudes toward teaching by ITAs
   ___ Perception of effective instruction

L. Situational Variables
___ Class size
___ TA’s social relationships with peers
___ Culture of the department
___ Role of TA within the department

M. Academic Department Variables
___ How they perceive & interpret their roles in language screening & pedagogical training
### Theoretical Framework based on literature review

<table>
<thead>
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<th>Variable clusters</th>
<th>Examples</th>
<th>Independent Variables</th>
<th>Examples</th>
<th>Dependent Variables</th>
<th>Examples</th>
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<td>TA Outcomes</td>
<td>Self-efficacy, teaching effectiveness, etc.</td>
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<td>Dept. training</td>
<td>Length, topics, feedback, etc.</td>
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<td>Academic achievement, motivation, etc.</td>
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<td>Supervisor</td>
<td>Availability, feedback, support of TA development, etc.</td>
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<td>Interaction with other TAs</td>
<td>Availability, feedback, support of TA development, etc.</td>
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<td>Other TA-related experiences</td>
<td>Classroom experiences, outside of school experiences</td>
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<td>Learning Styles</td>
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### Appendix B

**Pilot of Entering GTAs**

| B1 | IRB Approval and Application, p. 421 |
| B2 | Informed Consent Forms |
|    | Microteaching facilitator consent form, p. 430 |
|    | GTA Seminar participant consent form, p. 432 |
|    | GTA supervisor consent form, p. 434 |
| B3 | Report: Pilot Study of Entering GTAs, p. 436 |
Notice of Expedited Review Status

From: Florida Tech Institutional Review Board
FWA00014339, Exp. 4/14/2012, IRB000001690

To: Angela Delp

Date: December 18, 2011

IRB Number: 11-131

Study Title: TA professional development pilot study, Spring 2012

Dear Researcher:

Your research protocol was reviewed and approved by the IRB Chairperson. Per federal regulations, 45 CFR 46.110, your study has been determined to involve no more than minimal risk for human subjects. Federal regulations define minimal risk to mean that the probability and magnitude of harm are no more than would be expected in the daily life of a normal, healthy person.

Unless you have requested a waiver of consent, participants must sign a consent form, and the IRB requires you give each participant a copy of the consent form for their records. For online surveys, please advise participants to print out the consent screen for their files.

All data, which may include signed consent form documents, must be retained in a locked file cabinet for a minimum of three years (six if HIPAA applies) past the completion of this research. Any links to the identification of participants should be maintained on a password-protected computer if electronic information is used. Access to data is limited to authorized individuals listed as key study personnel.

Procedural changes or amendments must be reported to the IRB, and no changes may be made without IRB approval except to eliminate apparent immediate hazards. Please use the Request for Revision form located on the IRB website.

This study is approved for one year from the above date. If data collection continues past this date, a Continuing Review Form must be submitted.
### Part 1 - General Information

**Title of Project:** TA Professional Development Pilot Study, Spring 2012  
**Date of Submission:** December 9, 2011  
**Expected Project Start Date:** January 3, 2012  
**Expected Project Duration:** 1 semester

**Principal Investigator:** Angela Dei  
**Title:** PhD student & Assistant Director of TA Seminar  
**Academic Unit:** Dept. of Education & Interdisciplinary Studies  
**Phone:** Office: (321) 674-7627 Home: (321) 254-1694  
**Email:** adel2007@my.fit.edu

**Co Investigator:**  
**Title:**  
**Academic Unit:**  
**Phone:**  
**Email:**

**Co Investigator:**  
**Title:**  
**Academic Unit:**  
**Phone:**  
**Email:**

### Part 2 - Project Sponsorship Information (current or planned)

1. Is the research to be funded with federal funds, or are federal funds being applied for?  
   **No**  
   If yes, please provide one copy of the grant proposal.

2. Is the research to be funded by a private sponsor?  
   **No**
Part 3 - Other Study Information

1. Is this a clinical research project? (Definition: Clinical Research Involving Human Subjects means any research or medical procedure involving human subjects or the use of human samples for the development and evaluation of patient therapies, such as diagnostic tests, drug therapies, or medical devices. It includes clinical trials.)
   Yes

2. Do any project personnel receive incentives for recruiting human subjects or for any other purpose directly related to the study?
   No

3. Does the research involve the collection of data concerning:
   a. Minors (18 years or under)?
     No
   b. Prisoners?
     Yes
   c. Fetuses, pregnant women, or information about human in vitro fertilization?
     Yes
   d. The cognitively impaired?
     Yes
   e. Subjects who are institutionalized (e.g., in a mental health facility, nursing home, or halfway house)?
     Yes

4. Will the study eliciting data about subjects engaged in illegal or stigmatizing behaviors (e.g., illicit drug use, child abuse, alcoholism, or gambling)? If so, provide an explanation in the study description.
   No

5. Does the research involve deception of the subjects by the researcher? If so, discuss why deception is necessary in the study description.
   Yes

6. Does the research involve:
   a. Non Florida Tech researchers?
     No
   b. Collection of images or audio recordings of the subjects?
     Yes
   c. Will the study target or exclude a particular gender or ethnic or racial group?
     No

7. Will the research be conducted outside of the United States?
   Yes

Part 4 - Research Description

1. In lay terms, please describe the GENERAL PURPOSE of the study and how human subjects will be involved. List the SPECIFIC AIMS and RESEARCH QUESTIONS or HYPOTHESES.

   The purpose of this pilot study is to gain insights into factors apparent in prior research studies that may play an influential role in the professional development of TAs at Florida Tech. Toward this end, pilot data will allow me: (Goal A) to examine the usefulness of the Background Information Survey completed before the TA Seminar in Spring '12, (Goal B) to analyze information about TAs' perceptions and performance generated during this TA Seminar; and (Goal C) to examine the professional development of those TA Seminar attendees who served as TAs over the course of the Spring '12 semester.

2. Outline the INCLUSION CRITERIA for subjects, explaining the rationale for the involvement of any special groups including children, prisoners, pregnant women, or subjects with cognitive impairments. Describe the characteristics of the targeted subjects, including gender, age ranges, ethnic background, and health/treatment status. If women or minorities are excluded, provide written justification. Give the number of subjects you anticipate including from each targeted group listed above.
B1 IRB Approval and Application

All graduate students enrolled in the Spring '12 TA Seminar are asked to grant access to (Goal A) Background Information Survey responses, and (Goal B) information generated during this TA Seminar.

Microteaching Facilitators of the TA Seminar will also be asked to provide evaluation sheets and be interviewed for clarification on these evaluations of the Seminar attendees' teaching performance during the three Microteaching sessions of the TA Seminar (Goal B).

Only those Seminar attendees who will have a TA appointment in Spring '12 are asked to participate in the portion of this pilot study associated with (Goal C). The TA Supervisors of those Seminar attendees with Spring '12 TA appointments also will be asked to participate in interviews regarding their TA's performance and professional development.

3. Describe sources for potential participants, how subjects will be RECRUITED or the sampling procedures. Attach recruitment advertisements if applicable.

The source for potential participants is the Spring 2012 TA Seminar. TA Seminar attende subjects will be recruited by a briefing and Informed Consent on the 5th of January at 8:30am. Microteaching Facilitators will be approached before the Seminar begins on a one-on-one basis. Supervisors of TA Seminar participants who have TA appointments in Spring '12 will be approached on a one-on-one basis after the Seminar has ended.

4. Describe any COMPENSATION the subjects will receive, including course credit. If monetary compensation is offered, indicate how much the subjects will be paid and describe the terms of payment.

There will not be any compensation for participation in this study.

5. Explain how CONFIDENTIALITY and privacy of participant data (and anonymity if appropriate) will be maintained. If the research study involves collection of images or audio recordings of subjects, explain how the material will be used, who will see the images or hear the recordings, and in what setting.

All responses from each group of pilot study participants will be coded with an ID number so that I will be the only one who can relate each name to each response. The only reason I have for knowing the respondents' names is to be able to link information/data that they provide at different times and in different ways (e.g., Background Information Survey, Microteaching Reflection Journals or evaluations, observations, and/or interviews). Further, each response will be kept strictly confidential (i.e., the names will never be used in discussions or reports of this pilot study). As long as data are being used, they will be kept in a locked file, accessible only by me. Finally, I will not keep any of the print information/data gathered for the pilot study. Information/data gathered for the pilot study (Goal A) and (Goal B) will be returned to TA Seminar administrators or participants, while hard copies of information/data gathered for pilot study (Goal C) will be destroyed by the end of the Spring 2012 semester.

6. Describe the study design/research/measurement PROCEDURE (e.g., control and experimental groups, etc.). Indicate whether or not the subjects will be randomized for this study. Discuss how you will conduct your study, and what measurement instruments you are using. Attach a copy of any questionnaires, measurement instruments, interview protocols, or a description of topics or an approximate script that will be used. If not available at this time, explain. Deceptive techniques must be justified by the study's prospective scientific, educational, or applied value, and the Investigator should explore equally effective alternative procedures that do not use deception and a descript form/process must be discussed here.

Please describe your study in enough detail so the IRB can identify what you are doing and why.
B1  IRB Approval and Application

I am using a mixed methods approach involving observations, interviews, a survey instruments, and document analysis to obtain information/data about Teaching Assistants who have attended the Spring 2012 Teaching Assistant (TA) Seminar. The TA Seminar is a 3-day professional training for Teaching Assistants of all disciplines campus-wide (see syllabus and agenda attached). The goal of the training is to prepare attendees to become effective university instructors. Before arriving to participate in the training on January 3, 2012, attendees-to-be are asked to fill out a background information survey on ANGEL (attached), so that their needs may be assessed before entering the seminar. The survey (Goal A) asks information about selected demographic characteristics, prior TA/teaching experience, degree program, schedule, TA role, career aspirations, and perceptions of teaching and the TA Seminar. Once obtained, the information from the survey may clarify how varied the Seminar attendees are in their readiness and ability to take on a TA appointment before they begin—as indicated in the research literature, missing but very important pieces of information to have when designing and offering training programs to assist TAs in their professional development. Further, an analysis of responses to last item in this survey, coupled with analyses of any survey item(s) referred to in those responses, will provide useful information that can be used to modify and improve this survey for use in future TA Seminars.

The TA Seminar consists of morning presentations on the roles and responsibilities of instructors by Florida Tech faculty, which may then prepare attendees for their afternoon sessions of Microteaching. Each afternoon, the TA Seminar attendees meet their assigned groups, teach micro-lessons in their discipline, and critique each other. The critiques are performed on Microteaching evaluation sheets, which are held in confidence with the Microteaching facilitator—an experienced TA who also critiques the TA attendees. I will communicate the details of my pilot study for (Goal B) and provide a consent form to each Microteaching facilitator so that I may obtain and use a copy of the facilitators’ completed evaluation forms in my research (consent form attached). Reviewing the Microteaching evaluations of Seminar attendees should help me understand aspects of the short-term instructional development of the TAs over the course of the TA Seminar (e.g., apparent strengths and weaknesses).

Other documents are generated or tracked on the ANGEL course over the three days of the seminar: 1 public speaking quiz, 3 lesson plans, 3 microteaching reflective journal entries, 3 microteaching evaluations, and 3 seminar evaluations. Attendees must complete all work and attend all sessions as stated in the syllabus and attendance agreement. With the informed consent of the TA Seminar attendees, I intend to use their background surveys and microteaching reflection journals in my research. In the morning on the third day, January 5, 2012, I will present my pilot study to attendees. They will have the opportunity to ask questions about my research and read informed consent forms (all above documentation is attached). All of the data collected on ANGEL for (Goal B) will provide me insight with respect to the TA Seminar about the perceptions, attitudes, personal gains, unaddressed deficiencies, and confidence levels of the attendees over the 3-day training period.

Once the Seminar is over, for (Goal C) I will contact those who have TA appointments in the Spring ’12 semester along with their corresponding supervisors. First, I will contact each supervisor, explain the nature and purpose of this pilot study, and provide an informed consent form that pertains to my planned interviews of them. I will arrange a schedule of classroom observations to take place three times over the course of the semester with each participant. Each of the classroom observations will have an 20- minute interview with the TA scheduled before and after it. This means I will interview the participants for a total of six times over the course of the Spring 2012 semester. Interviews with the supervisor will occur once per observation, making a total of three 20-minute interviews. In part because there has been no follow up with TA Seminar attendees or their supervising faculty members in the past, and in part because most interview questions will be tied to observations, these interviews will include a set of informational, clarifying, and probing questions that will be more unique than structured. For this reason, there is no attached protocol for interviews with either set of pilot study participants. This part of the investigation will begin to provide previously unknown information about Florida Tech TAs’ experience in the field after having been through the TA Seminar.
B1 IRB Approval and Application

7. Describe all SITES where this research will take place and attach documentation of permission from the appropriate source if the study involves subjects from places other than common public spaces.

This research will take place on the Florida Tech campus.

8. Describe any POTENTIAL RISKS (physical, psychological, social, legal or other) and the steps that will be taken to minimize risk. Where appropriate, discuss provisions for ensuring necessary medical or professional intervention in the event of adverse effects to the subjects. Also, where appropriate, describe the provisions for monitoring the data collected to ensure the safety of subjects. Research involving children must carefully assess risks and describe the safeguards in place to minimize these risks.

There are no anticipated risks associated with participation in this study. Other than the time involved in making information/data sources available, and in information/data collection (observations and accompanying interviews), there are no costs associated with participation.

9. Discuss the importance of the knowledge that will result from your study and what benefits will accrue to your subjects (if any). Discuss why the risks to subjects are reasonable in relation to the anticipated BENEFITS to subjects.

The primary benefits for TA Seminar participants include an opportunity to voice questions and concerns as a TA; and improve performance and professional development as a TA. The primary benefits for Microteaching facilitators include opportunities to voice questions and thoughts about the TA Seminar, TAs in general, and/or individual Seminar attendees. The primary benefits for TA faculty supervisors include opportunities to voice questions and thoughts about the TA Seminar, TAs in general, and the performance and progress of each new TA being supervised. The primary benefits for future TAs include improvements to the Background Information Survey, improvements in the TA seminar, Departmental training of TAs, and faculty supervision of TAs; and insights into additional TA professional development needs and opportunities. The primary benefit for the doctoral researcher is the insights I will gain into the professional needs and development of TAs as a whole, in subgroups (e.g., by College, by gender), and individually; and the use of these insights to design my full dissertation study. The results of the full dissertation study will be made available to those interested in a manner that is mutually acceptable.

10. CONSENT. Informed consent can be in either written or oral format. If you request waiver of informed consent, documentation of informed consent, or of written informed consent, please state your justifications. Attach consent form if applicable. If an oral consent is planned, attach a copy of the text of the statement. (Consent form should contain all eight elements listed in Part 5).

Waiver of Consent is requested under Federal law Title 45 46.116 (d), which permits the waiver of the requirement of obtaining written prospective informed consent under the following conditions, all of which apply to this pilot study:

- The research poses no more than minimal risk to subjects.
- There are no adverse effects as a result of the waiver or alteration.
- Without the waiver or alteration, the research in question could not be carried out
- Information about the findings of this pilot study will be provided after participation is completed, as appropriate.
Part 5 - INSTRUCTIONS FOR DOCUMENTATION OF INFORMED CONSENT

Informed consent is one of the primary ethical requirements underlying human subjects research, reflecting the principle of respect for potential subjects. Informed consent assures that prospective human subjects understand the nature of the research and can decide knowledgeably and voluntarily whether or not to participate.

Informed consent refers to the voluntary choice of an individual to participate in research based on an accurate and complete understanding of, among other things, its purposes, procedures, risks, benefits, alternatives, and any other factors that may affect a person's decision to participate.

The basic concepts of the consent process include:

- Full disclosure of the nature of the research and the subject's participation, adequate comprehension on the part of the potential subject
- Voluntary choice to participate
- Informed consent must be documented by use of a written consent form approved by the IRB and signed by the participant or the participant's legally authorized representative. A copy should be given to the person signing the form. Even though the IRB has approved a consent procedure, it is the investigator's responsibility to ensure that each potential subject understands the information and to take the appropriate steps necessary to gain that comprehension.

Individuals may not be involved as research participants unless a) they understand the information that has been provided and informed consent has been obtained, or b) the IRB has approved a waiver for informed consent.

REMEMBER: If the participant is under the age of 18, parental consent is required. This includes college students under the age of 18.

If the research involves the participation of minors (under 18 years of age), read the description of requirements for research involving children. Additional requirements concerning parental consent forms and child assent are discussed.

Please follow the instructions for documentation carefully.

1. The consent form should be written in language that the participants can understand. Whenever possible, simple declarative sentences should be used. Ordinary language should explain technical terms.

2. Avoid the use of exculpatory language through which the subject or the representative is made to waive any of his/her legal rights or release the investigator, sponsor or institution or its agents from liability for negligence.

3. Important information that must be included on the Consent Form:
   a) Purpose of the research
   b) Procedures to be followed (what will the participants be asked to do? include physical requirements or experimental procedures if applicable.)
   c) Foreseeable risks or discomforts to the subject. What are the risks associated with participating and what safeguards are in place? Include the following statement, where appropriate:

   "In the event of physical injury resulting from the research procedures, no form of compensation is available. Medical treatment may be provided at your expense or at the expense of your health care..."
B1 IRB Approval and Application

Insurer (i.e., Medicare, Medicaid private payor) which may or may not provide coverage. If you have questions it is your responsibility to contact your insurer.”

d) Benefits to the subject or others which may reasonably be expected to result

e) Alternative procedures or alternatives to participation if any

f) Level of confidentiality of participant records. Is data anonymous? How will data be stored? If audio or visual records are obtained how will they be maintained? Who will have access to the data?

g) Primary investigator’s contact information. Point of contact for questions or problems related to this study.

h) IRB contact. Also note the study was approved by Florida Institute of Technology’s IRB and list the current IRB Chair and his/her contact Information for questions about the rights of people who take part in research.

h) Voluntary participation, refusal, and withdrawal. Include the following statement:

“Participation is voluntary. Refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled. You may discontinue participation at any time without penalty or loss of benefits to which you are otherwise entitled.”

i) Signatures, if appropriate. Provide a place for:

a) Signature of the participant (or his/her legally authorized representative)

b) Date of signature

Waiver of Informed Consent

The IRB may approve a consent procedure that does not include, or which alters, some or all of the elements of informed consent outlined above, or waive the requirements to obtain informed consent provided the IRB finds and documents that the following four conditions have been met:

- The research involves no more than minimal risk to the subjects;
- The waiver or alteration will not adversely affect the rights and welfare of subjects;
- The research could not practicably be carried out without the waiver or alteration; and
- Whenever appropriate, the subjects will be debriefed — provided with additional pertinent information — after they have participated in the study.
B1 IRB Approval and Application

Part 6: SIGNATURE ASSURANCE SHEET

Principal Investigator's Assurance Statement:

I understand Florida Institute of Technology's policy concerning research involving human subjects and I agree:

1. to accept responsibility for the scientific and ethical conduct of this research study.
2. to obtain prior approval from the Institutional Review Board before amending or altering the research protocol or implementing changes in the approved consent form.
3. to immediately report to the IRB any serious adverse reactions and/or unanticipated effects on subjects which may occur as a result of this study.
4. to complete, on request by the IRB, a Continuation Review Form if the study exceeds its estimated duration.

PI Signature: [Signature] Date: 12-8-2011

Advisor Assurance: If primary investigator is a student
This is to certify that I have reviewed this research protocol and that I attest to the scientific merit of the study, the necessity for the use of human subjects in the study to the student's academic program, and the competency of the student to conduct the project.

Major Advisor: [Signature] Date: 12/8/11
Major Advisor (print) Dr. Tom Marcinkowski

Academic Unit Head: It is the PI's responsibility to obtain this signature
This is to certify that I have reviewed this research protocol and that I attest to the scientific merit of this study and the competency of the investigator(s) to conduct the study.

Academic Unit Head: [Signature] Date: 12/8/11

Academic Unit Head Dr. Laszlo Bakcsay

FOR IRB USE ONLY

IRB Approval: [Signature] Date: 12-18-11

IRB #

Florida Tech IRB: November 2005
B2 Microteaching facilitator consent form

Informed Consent Form
TA Professional Development Pilot Study, Spring 2012

1. What is the purpose of this study? The purpose of this pilot study is to gain insights into factors apparent in prior research studies that may play an influential role in the professional development of TAs at Florida Tech. Toward this end, pilot data will allow me: (Goal A) to examine the usefulness of the Background Information Survey completed before the TA Seminar in Spring ’12; (Goal B) to analyze information about TA perceptions and performance generated during this TA Seminar; and (Goal C) to examine the professional development of those TA Seminar attendees who serve as TAs over the course of the Spring ’12 semester.

2. How were you chosen? All Microteaching Facilitators of the Spring ’12 TA Seminar are being asked to allow me access to their microteaching evaluations and answer follow-up questions for clarification.

3. What is involved in participating? For (Goal B), above, I plan to access and use the following kinds of information/data from you:
   • your evaluations of Microteaching by TA Seminar attendees; and
   • your comments during informal interviews that I conduct after this Seminar.

4. How will your participation be kept anonymous and confidential? Your responses will be coded with an ID number so that I will be the only one who can relate your name to your response. The only reason I have for knowing your name is to be able to link the information/data you may provide on the TA Seminar attendees (i.e., your Microteaching evaluations and interview comments). Further, your response will be kept strictly confidential (i.e., your name will never be used in discussions or reports of this pilot study). As long as data are being used, they will be kept in a locked file, accessible only by me. Finally, all print information/data gathered for the pilot study will be destroyed by the end of the Spring ’12 semester.

5. What are the risks and benefits associated with participating? There are no anticipated risks associated with your participation in this study. Other than the time involved in making information/data sources available (your Microteaching evaluations) and in information/data collection (interviews), there are no costs associated with your participation. The primary benefits for you include opportunities for you to voice your questions and thoughts about the TA Seminar, TAs in general, and/or individual Seminar attendees. The primary benefits for future TAs include: improvements in the TA seminar, Departmental training of TAs, and faculty supervision of TAs; and insights into additional TA professional development needs and opportunities. The primary benefits for me, as doctoral researcher, include: insights I will gain into the professional needs and development of TAs as a whole, in subgroups (e.g., by College, by gender), and individually, and the use of these insights to design my full dissertation study. The results of the full dissertation study will be made available to those interested in a manner that is mutually acceptable.

6. How will this information be used? The information gathered from this portion of my Spring ’12 pilot study could lead to improvements in the Background Information Survey so that it can be easily understood and answered clearly and completely. The investigation should also uncover both deficiencies and successes of existing training programs such as the TA Seminar and Departmental trainings, which can be used to further enhance these trainings.
Microteaching facilitator consent form

At present, it is not yet clear which aspect(s) of the professional development of TAs should become the focus of my dissertation study. This pilot study should help me to clarify this question, and therefore help me design my full study. I plan to report the results of this pilot study in my dissertation, and may include a summary of this pilot study in any published articles associated with my dissertation study.

7. What are your rights as participants? You may ask me any questions at any time about this study and they will be answered to your satisfaction (see below). Your participation in this study is voluntary. You may choose not to participate, and you may withdraw from this study at any time if you do not feel comfortable. Not participating in this research project will have no effect on any aspect of your personal or professional life.

8. Who do you contact for more information? If you have any questions about this project you can contact the researcher by phone or email:

- Angela Delp (Ph.D. Student). E-mail: adelp@fit.edu. Phone: (321) 674-7527
- Dr. Tom Marcinkowski (Ph.D. Advisor). E-mail: marcinko@fit.edu. Phone: (321) 674-8946

If you would rather, you may pose your questions to Florida Tech's Institutional Review Board Office at (321) 674-8104 or email, Dr. Lisa Steelman, IRB Chair, at Steelman@fit.edu.
GTA Seminar participant consent form

Informed Consent Form
TA Professional Development Pilot Study, Spring 2012

1. What is the purpose of this study? The purpose of this pilot study is to gain insights into factors identified in prior research that may play an influential role in the professional development of TAs at Florida Tech. Toward this end, pilot data will allow me: (Goal A) to examine the usefulness of the Background Information Survey completed before the TA Seminar in Spring '12; (Goal B) to analyze information about TA perceptions and performance that arise during this TA Seminar; and (Goal C) to examine the ongoing professional development of those TA Seminar attendees as they serve as TAs over the course of the Spring '12 semester.

2. How were you chosen? All graduate students enrolled in the Spring '12 TA Seminar are asked to grant me access to information and data pertinent to (Goal A) and (Goal B), as described below. Only those Seminar attendees who will have a TA appointment in Spring '12 are asked to participate in the portion of this pilot study associated with (Goal C), as described below.

3. What is involved in participating? For (Goal A) and (Goal B), I plan to access and use the following kinds of information/data:
   • your Background Information Survey responses, and additional demographic data through the office of Institutional Research;
   • your Microteaching Reflection Journal;
   • evaluations of your Microteaching prepared by Seminar facilitators; and
   • your comments during informal interviews that I conduct during this Seminar.

In addition, for (Goal C), for Seminar attendees who will serve as a TA in Spring '12, I plan to gather and use the following type of information/data:
   • observations of your TA performance that I will schedule and conduct;
   • your responses to individual interviews I will schedule and conduct; and
   • interviews with your Supervising faculty member(s).

If you will serve as a TA in Spring '12, I plan to schedule and conduct 3 observations of you in your TA role over the Spring '12 semester. The length of each observation will vary, depending on the length of each class and/or lab (e.g., from 50 minutes to 3 hours). No additional time commitment will be sought on the day of each scheduled observation. I also plan to schedule and conduct interviews with you before (pre) and after (post) each observation. These interviews will focus primarily on your TA roles/responsibilities on the date I observe you. Your estimated time commitment for each pre and each post interview will be about 20 minutes, so your total estimated time commitment for the three pre and post interviews will be about 2 hours.

4. How will your participation be kept anonymous and confidential? Your responses will be coded with an ID number so that I will be the only one who can relate your name to your response. The only reason I have for knowing your name is to be able to link information/data that you provide at different times and in different ways (e.g., Background Information Survey, Microteaching Reflection Journal, observations, and interviews). Further, your response will be kept strictly confidential; your name will never be used in discussions or reports of this pilot study. As long as data are being used, they will be kept in a locked file, accessible only by me. Finally, I will not keep any of the print information/data gathered for the pilot study. Information/data gathered for the pilot study (Goal A) and (Goal B) will be returned to TA Seminar administrators or participants, while all hard copies of information/data gathered for pilot study (Goal C) will be destroyed by the end of the Spring '12 semester.
B2 GTA Seminar participant consent form

5. What are the risks and benefits associated with participating? There are no anticipated risks associated with your participation in this study. Other than the time involved in making information/data available, and in information/data collection (observations and accompanying interviews), there are no costs associated with your participation. The primary benefits for you include your opportunity to: voice your questions and concerns as a TA; and improve your performance and professional development as a TA. The primary benefits for future TAs include: improvements to the Background Information Survey; improvements in the TA seminar, Departmental training of TAs, and faculty supervision of TAs; and insights into additional TA professional development needs and opportunities. The primary benefits for me, as doctoral researcher, include: insights I will gain into the professional needs and development of TAs as a whole, in sub-groups (e.g., by College, by gender), and individually; and the use of these insights to design my full dissertation study. The results of the full dissertation study will be made available to those interested in a manner that is mutually acceptable.

6. How will this information be used? The information gathered from this Spring '12 pilot study could lead to improvements in the Background Information Survey so that it can be easily understood and answered clearly and completely. The investigation should also uncover both deficiencies and successes of existing training programs such as the TA Seminar and Departmental trainings, which can be used to further enhance these trainings.

At present, it is not yet clear which aspect(s) of the professional development of TAs should become the focus of my dissertation study. This pilot study should help me to clarify this question, and therefore help me design my full study. I plan to report the results of this pilot study in my dissertation, and may include a summary of this pilot study in any published articles associated with my dissertation study.

7. What are your rights as participants? You may ask me any questions at any time about this study and they will be answered to your satisfaction (see below). Your participation in this study is voluntary. You may choose not to participate, and you may withdraw from this study at any time if you do not feel comfortable. Not participating in this research project will have no effect on any aspect of your personal or professional life, including your position as a TA.

8. Who do you contact for more information? If you have any questions about this project you can contact the researcher by phone or email:

- Angela Delp (Ph.D. Student), E-mail: adelp2007@my.fit.edu, Phone: (321) 674-7527
- Dr. Tom Marcinkowski (Ph.D. Advisor), E-mail: marcinko@fit.edu, Phone: (321) 674-8946

If you would rather, you may pose your questions to Florida Tech's Institutional Review Board Office at (321) 674-8104 or email, Dr. Lisa Steelman, IRB Chair, at lsteelema@fit.edu.
B2 GTA supervisor consent form

Informed Consent Form
TA Professional Development Pilot Study, Spring 2012

1. What is the purpose of this study? The purpose of this pilot study is to gain insights into factors into factors identified in prior research that may play an influential role in the professional development of TAs at Florida Tech. Toward this end, pilot data will allow me: (Goal A) to examine the usefulness of the Background Information Survey completed before the TA Seminar in Spring ’12; (Goal B) to analyze information about TAs’ perceptions and performance generated during this TA Seminar; and (Goal C) to examine the professional development of those TA Seminar attendees who serve as TAs over the course of the Spring ’12 semester.

2. How were you chosen? Only those Seminar attendees who will have a TA appointment in Spring ’12 are asked to participate in the portion of this pilot study associated with (Goal C). All faculty supervisors of those Seminar attendees (new TAs), will be interviewed concerning aspects of the ongoing professional development of each new TA you will be supervising in Spring ’12.

3. What is involved in participating? For (Goal C), above, I plan to schedule and conduct the following type of information/data:
   - observations of each TA while they are fulfilling TA roles/responsibilities;
   - individual interviews with each of these TAs; and
   - individual interviews with you;

For your information, I plan to schedule and conduct 3 observations of each of your new TAs over the Spring ’12 semester, and to conduct interviews with each TA before (pre) and after (post) each observation. I also plan to interview you three times about each new TA during the Spring ’12 semester regarding aspects of that TA’s performance and progress. Each interview will last about 20 minutes, and the total estimated time commitment for all three interviews, per TA, will be about 1 hour.

4. How will your participation be kept anonymous and confidential? Your responses will be coded with an ID number so that I will be the only one who can relate your name to your response. The only reason I have for knowing your name is to be able to link information/data that you provide about each TA you will be supervising (e.g., from the first to the second and third interview). Further, your response will be kept strictly confidential (i.e., your name will never be used in discussions or reports of this pilot study). As long as data are being used, they will be kept in a locked file, accessible only by me. Finally, I will not keep any of the print information/data gathered for the pilot study. All hard copies of information/data gathered for pilot study (Goal C) will be destroyed by the end of the Spring 2012 semester.

5. What are the risks and benefits associated with participating? There are no anticipated risks associated with your participation in this study. Other than the time involved in making information/data sources available, and in information/data collection (observations and accompanying interviews), there are no costs associated with your participation. The primary benefits for you include opportunities to voice your questions and thoughts about the TA Seminar, TAs in general, and the performance and progress of each new TA you will supervise. The primary benefits for future TAs include: improvements to the Background Information Survey; improvements in the TA seminar, Departmental training of TAs, and faculty supervision of TAs; and insights into additional TA professional development needs and opportunities. The primary benefits for me, as doctoral researcher, include: insights I will gain into the professional needs and development of TAs as a whole, in subgroups (e.g., by College, by gender), and individually; and the use of these insights to design my full

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dissertation study. The results of the full dissertation study will be made available to those interested in a manner that is mutually acceptable.

6. How will this information be used? The information gathered from this portion of my Spring '12 pilot study could lead to improvements in the Background Information Survey so that it can be easily understood and answered clearly and completely. The investigation should also uncover both deficiencies and successes of existing training programs such as the TA Seminar and Departmental trainings, which can be used to further enhance these trainings.

At present, it is not yet clear which aspect(s) of the professional development of TAs should become the focus of my dissertation study. This pilot study should help me to clarify this question, and therefore help me design my full study. I plan to report the results of this pilot study in my dissertation, and may include a summary of this pilot study in any published articles associated with my dissertation study.

7. What are your rights as participants? You may ask me any questions at any time about this study and they will be answered to your satisfaction (see below). Your participation in this study is voluntary. You may choose not to participate, and you may withdraw from this study at any time if you do not feel comfortable. Not participating in this research project will have no effect on any aspect of your personal or professional life.

8. Who do you contact for more information? If you have any questions about this project you can contact the researcher by phone or email:

- Angela Delp (Ph.D. Student). E-mail: adelp2007@my.fit.edu, Phone: (321) 674-7527
- Dr. Tom Marchkowski (Ph.D. Advisor). E-mail: marchko@fit.edu, Phone: (321) 674-8946

If you would rather, you may pose your questions to Florida Tech's Institutional Review Board Office at (321) 674-8104 or email, Dr. Lisa Steelman, IRB Chair, at lsteelma@fit.edu.
B3 Report: Pilot study of entering GTAs

The purpose of the pilot study of entering GTAs (entrance pilot) was to gain insight into factors apparent in prior research studies that pertain to their professional development and teaching concerns during the first semester as GTAs at Florida Tech (see Appendix B1). The accessible population included participants of the Spring 2012 GTA Seminar. A briefing and an informed consent form were used to recruit GTA Seminar attendees on the 5th of January, 2012 (see Appendix B2). Once the seminar ended, I invited those who had TA appointments in the Spring 2012 semester to participate in my post-seminar pilot study.

Of the 25 seminar attendees, 17 had GTA appointments in the Spring 2012 semester and therefore were eligible to participate in this pilot. Twelve of those 17 were willing to participate in the pilot study. Once I had this list of participants, I contacted the participants’ supervisors, explained the nature and purpose of the study, and invited the supervisors to participate in the pilot study interviews I had planned. I also requested the participation of Microteaching Facilitators via an informed consent form so that I could obtain a copy of seminar evaluation forms completed for each participant GTA for review. As a whole, pilot data allowed me to examine the usefulness of the recently developed pre-seminar Background Information Survey, analyze information about GTAs’ perceptions and performance generated during the GTA Seminar, and examine the professional
development and concerns of GTA Seminar attendees who served as GTAs over the course of the Spring 2012 semester.

**Data collection methods.** A mixed-methods approach was used and included observations, interviews, survey instruments, and document analysis to gather data about these GTAs. Each day of the seminar, once the microteaching sessions were over, attendees were required to reflect on the experience in their Microteaching Reflection Journals (see Appendix B3). After acquiring their consent, I reviewed the Microteaching Reflection Journals of seminar attendees. This helped me better understand aspects of this initial short-term development of the GTAs over the course of the seminar. In these journals, attendees discussed their desire to improve on their speech (e.g., pace, tone, volume), board-work (e.g., organization, legibility), time management, eye-contact, engaging or interacting with students, checking for understanding, and wait-time for questions. However, after reviewing the completed Microteaching Evaluation forms, I concluded that many of the observation forms lacked focus on specific teaching strategies and/or that many of the facilitators were insufficiently trained to provide useful information for analysis.

With each participating GTA, I arranged a schedule of classroom observations to take place three times over the course of the semester. The interview questions for each GTA were tied to my prior observation of their in-class performance so that they were more unique than structured. Each of the
classroom observations was both preceded and followed by a 20-minute interview with that GTA. I also interviewed each of the GTA’s supervisors once over the semester. This part of the investigation was most informative because it provided previously unknown information about Florida Tech GTAs’ experience in the field after having completed the GTA Seminar.

**Data analysis methods.** Responses during each interview were typed out and organized by date. Using content analysis procedures, key statements from the interviews were identified and clustered together in categories. The frequency of the responses within each category was noted and was organized on a spreadsheet. All of these data forms were investigated closely for high and low frequencies and similar response across interviews and respondents.

**Results.** The participants’ demographic and background information was compiled from the Background Information Survey (BIS) and placed in a table for comparison purposes (Table B.1, p. 443). The participants spanned three age groups: ages 20-24 ($n = 3$), 25-29 ($n = 5$), and 30-34 ($n = 4$). The participant group included five domestic males, one domestic female, two international males, and four international females. Of the domestic participants, all were Caucasian with the exception of one Hispanic male. Four participants did not claim English as their native language. The international males were from India. Two of the international females were Canadian, another was Lebanese, and the last was from India.
Table B.1

Comparison of Entrance Pilot Participants and Florida Tech
GTA Demographics Campus-Wide in 2012

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Entrance Pilot</th>
<th>Florida Tech</th>
<th>% Difference (S%-FT%)a</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(N = 12)</td>
<td>(N = 122)</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>7 (58.3%)</td>
<td>77 (63.1%)</td>
<td>(-4.8%)</td>
</tr>
<tr>
<td>Female</td>
<td>5 (41.7%)</td>
<td>45 (36.9%)</td>
<td>(+4.8%)</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20-24</td>
<td>3 (25.0%)</td>
<td>54 (44.2%)</td>
<td>(-19.2%)</td>
</tr>
<tr>
<td>25-29</td>
<td>5 (41.7%)</td>
<td>38 (31.1%)</td>
<td>(+10.6%)</td>
</tr>
<tr>
<td>30-34</td>
<td>4 (33.3%)</td>
<td>18 (14.8%)</td>
<td>(+18.5%)</td>
</tr>
<tr>
<td>35-39</td>
<td>0 (0.0%)</td>
<td>5 (4.1%)</td>
<td>(-4.1%)</td>
</tr>
<tr>
<td>40-44</td>
<td>0 (0.0%)</td>
<td>5 (4.1%)</td>
<td>(-4.1%)</td>
</tr>
<tr>
<td>45-49</td>
<td>0 (0.0%)</td>
<td>1 (0.8%)</td>
<td>(-0.8%)</td>
</tr>
<tr>
<td>50+</td>
<td>0 (0.0%)</td>
<td>1 (0.8%)</td>
<td>(-0.8%)</td>
</tr>
<tr>
<td>Nationality</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>USA</td>
<td>6 (50.0%)</td>
<td>80 (65.6%)</td>
<td>(-15.6%)</td>
</tr>
<tr>
<td>International</td>
<td>6 (50.0%)</td>
<td>42 (34.4%)</td>
<td>(+15.6%)</td>
</tr>
<tr>
<td>Ethnicity of USA TAs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>(0.0%)</td>
</tr>
<tr>
<td>Black</td>
<td>0 (0.0%)</td>
<td>3 (2.5%)</td>
<td>(-2.5%)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>1 (8.3%)</td>
<td>7 (5.7%)</td>
<td>(+2.6%)</td>
</tr>
<tr>
<td>White</td>
<td>5 (41.7%)</td>
<td>61 (50.0%)</td>
<td>(-8.3%)</td>
</tr>
<tr>
<td>Unknown</td>
<td>0 (0.0%)</td>
<td>9 (7.4%)</td>
<td>(-7.4%)</td>
</tr>
<tr>
<td>Multiracial</td>
<td>0 (0.0%)</td>
<td>3 (2.5%)</td>
<td>(-2.5%)</td>
</tr>
<tr>
<td>Degree Program</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Master’s</td>
<td>8 (66.7%)</td>
<td>61 (50.0%)</td>
<td>(+16.7%)</td>
</tr>
<tr>
<td>Doctorate</td>
<td>4 (33.3%)</td>
<td>61 (50.0%)</td>
<td>(-16.7%)</td>
</tr>
</tbody>
</table>

Note. a(S%-FT%) = Percentage of Entrance Pilot minus percentage of Florida Tech.

Regarding degree programs, seven were pursuing a master’s degree and five were pursuing a doctorate. Further, they represented three of the university’s colleges: engineering (n = 4), science (n = 6), and psychology and language arts (n = 2). Only two participants had any previous experience serving as a college/university TA; the other ten had no such previous experience. Four participants had other previous classroom experience, and seven claimed to have no other classroom teaching experience.
From the interviews, I learned that 10 of the 12 participants taught pre-organized courses. One of the 12 taught an online course. During the first round of interviews, the most frequent concern expressed by the GTAs was how to deal with their students—their lack of motivation, their lack of etiquette and inability to keep a distance, their difficulty in understanding directions or lacking the necessary prerequisite knowledge, and their special needs (e.g., ADHD). One of the GTAs was honestly concerned that “students don’t want to participate or they are outright rude” and then continued to ask, “How do you handle that in a classroom setting?”.

In the second and third round of interviews, student-related issues were still the dominant concern of GTAs. However during the second round, student-related concerns included their lack of prerequisite knowledge, their rudeness, inability to improve, their cheating, their poor language ability, and their lateness. Time management and grading concerns also were starting to emerge. One GTA admitted, “The challenge is trying to make sure myself and the other TA are teaching and grading the same way.” In the third and final round of interviews, concerns about students remained in the forefront of the GTAs’ minds; 10 of the 12 GTAs discussed concerns they had about students (Table B.2, p. 445). GTAs noted that students were lazy or wouldn’t perform their work, misunderstood the authority-role of the GTA, lacked care or motivation for their learning, and refused to speak up about what they didn’t understand. Time management was the second
Table B.1

Summary of Results on Teaching Concerns from Entrance Pilot Study of Graduate Teaching Assistants (GTAs) at Florida Tech

<table>
<thead>
<tr>
<th>Concerns a</th>
<th>Frequency of Response</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Round 1 b</td>
</tr>
<tr>
<td>Students</td>
<td></td>
</tr>
<tr>
<td>Lack of interest or motivation</td>
<td>1</td>
</tr>
<tr>
<td>Irresponsible</td>
<td>3</td>
</tr>
<tr>
<td>Rudeness</td>
<td>0</td>
</tr>
<tr>
<td>Cheating</td>
<td>1</td>
</tr>
<tr>
<td>Language barriers</td>
<td>0</td>
</tr>
<tr>
<td>Special needs</td>
<td>1</td>
</tr>
<tr>
<td>Academic weakness</td>
<td>0</td>
</tr>
<tr>
<td>Time</td>
<td></td>
</tr>
<tr>
<td>Management</td>
<td>3</td>
</tr>
<tr>
<td>Grading</td>
<td></td>
</tr>
<tr>
<td>Consistency with other TAs</td>
<td>0</td>
</tr>
<tr>
<td>Disagreement with curving grades</td>
<td>0</td>
</tr>
<tr>
<td>Grading complaints</td>
<td>0</td>
</tr>
<tr>
<td>Communication on expectations (rubric)</td>
<td>0</td>
</tr>
</tbody>
</table>

Note. N = 27. “Concerns = TAs’ remarks about the things they frequently think of and would like to do something about in regards to teaching (Fuller & George, 1978). bRound 1 = GTA responses from first round of interviews. cRound 2 = GTA responses from second round of interviews. dRound 3 = GTA responses from third round of interviews.

most frequently cited concern (n = 6). Finally, grading was mentioned by only 1 out of the 12 GTAs as a concern in the final round of interviews.

Originally, I had planned to meet the participating GTAs’ nine supervisors three times over the semester to get another person’s perspective on the
professional development of these GTAs over the course of that semester.

However, during the first round of supervisor interviews I quickly learned that the majority of the supervisors rarely, if ever, step foot in their GTAs’ classes. Two supervisors saw a benefit in making an observation of their GTAs for the purposes of the GTAs’ career file, but each only planned to make one observation. Most of the supervisors were very willing to offer assistance to their GTAs, if their assistance was requested. Because most of them met or communicated with their GTAs on a weekly basis, they believed their GTAs were doing fine without further assistance.

Six of the nine professors admitted they did not observe their GTAs. One professor justified this by stating, “I haven’t observed her instruct her labs as I don’t want to intimidate her or make her nervous while she performs her work.” Another professor stated, “I have a hands-off approach, as I haven’t a background in educational theory.” Two others believed that it was not necessary to make any observations, unless problems with the class were brought to their attention by the GTAs’ students. One stated philosophy as justification for not observing TAs, “Do unto others as you have been done. I have only been viewed once as a faculty member for the entire 25 years I’ve been here as an instructor.”
Appendix C

Pilot of graduating GTAs

C1   IRB Approval and Application, p. 444
C2   Email to Request Participation, p. 453
C3   Exit Survey, p. 454
C4   Report: Pilot Study of Graduating GTAs, p. 462
Notice of Expedited Review Status

From: Florida Tech Institutional Review Board
FWA00014339, Exp. 4/18/2012, IRB00001690

To: Angela Depl

Date: March 2, 2012

IRB Number: 12-019

Study Title: TA Professional Development retrospective pilot study

Dear Researcher,

Your research protocol was reviewed and approved by the IRB Chairperson. Per federal regulations, 45 CFR 46.110, your study has been determined to involve no more than minimal risk for human subjects. Federal regulations define minimal risk to mean that the probability and magnitude of harm are no more than would be expected in the daily life of a normal, healthy person.

Unless you have requested a waiver of consent, participants must sign a consent form, and the IRB requires you give each participant a copy of the consent form for their records. For online surveys, please advise participants to print out the consent screen for their files.

All data, which may include signed consent form documents, must be retained in a locked file cabinet for a minimum of three years (six if HIPAA applies) past the completion of this research. Any links to the identification of participants should be maintained on a password-protected computer if electronic information is used. Access to data is limited to authorized individuals listed as key study personnel.

Procedural changes or amendments must be reported to the IRB, and no changes may be made without IRB approval except to eliminate apparent immediate hazards. Please use the Request for Revision form located on the IRB website.

This study is approved for one year from the above date. If data collection continues past this date, a Continuing Review Form must be submitted.
C1   IRB Approval and Application

Institutional Review Board Office
Dr. Lisa Stewman, Chair IRB
School of Psychology
(3) 674-1014
http://www.fit.edu/research/committees/irb/index.html

Florida Institute of Technology

RESEARCH INVOLVING HUMAN SUBJECTS
Expedited/Full Application

This information listed below should be submitted to Florida Tech’s IRB if the proposed research has more than minimal risk (none of the Exempt conditions apply) or if the research utilizes a special population (children, prisoners, institutionalized individuals, etc.).

Part 1 – General Information

Title of Project: TA Professional Development Retrospective Pilot Study
Date of Submission: February 17, 2012
Expected Project Start Date: April 1, 2012
Expected Project Duration: 1 month

Principal Investigator: Angela Delb
Title: PhD student & Assistant Director of TA Seminar
Academic Unit: Dept. of Education & Interdisciplinary Studies
Phone: Office: (321) 674-7527 Home: (321) 254-1694
Email: adelb2007@my.fit.edu

Co Investigator:
Title:
Academic Unit:
Phone:
Email:

Co Investigator:
Title:
Academic Unit:
Phone:
Email:

Part 2 - Project Sponsorship Information (current or planned)
1. Is the research to be funded with federal funds, or are federal funds being applied for?
   No
   If yes, please provide one copy of the grant proposal.
2. Is the research to be funded by a private sponsor?
   No

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445
C1    IRB Approval and Application

Florida Institute of Technology

RESEARCH INVOLVING HUMAN SUBJECTS
Expedited/Full Application

This information listed below should be submitted to Florida Tech's IRB if the proposed research has more than minimal risk (none of the Exempt conditions apply) or if the research utilizes a special population (children, prisoners, institutionalized individuals, etc.).

Part 1 - General Information

Title of Project: TA Professional Development Retrospective Pilot Study
Date of Submission: February 17, 2012
Expected Project Start Date: April 1, 2012
Expected Project Duration: 1 month

Principal Investigator: Angela Deib
Title: PhD student & Assistant Director of TA Seminar
Academic Unit: Dept. of Education & Interdisciplinary Studies
Phone: Office: (321) 674-7527 Home: (321) 254-1894
Email: adecib2007@my.fit.edu

Co Investigator:
Title:
Academic Unit:
Phone:
Email:

Co Investigator:
Title:
Academic Unit:
Phone:
Email:

Part 2 - Project Sponsorship Information (current or planned)
1. Is the research to be funded with federal funds, or are federal funds being applied for?
   No
   If yes, please provide one copy of the grant proposal.
2. Is the research to be funded by a private sponsor?
   No
C1 IRB Approval and Application

Part 3 - Other Study Information

1. Is this a clinical research project? (Definition: Clinical Research Involving Human Subjects means any research or medical procedure involving human subjects or the use of human samples for the development and evaluation of palliative therapies, such as diagnostic tests, drug therapies, or medical devices. It includes clinical trials.) No

2. Do any project personnel receive incentives for recruiting human subjects or for any other purpose directly related to the study? No

3. Does the research involve the collection of data concerning: Mirrors (18 years or under)? No
   - Prisoners? No
   - Fetuses, pregnant women, or information about human in vitro fertilization? No
   - The cognitively impaired? No
   - Subjects who are institutionalized (e.g., in a mental health facility, nursing home, or halfway house)? No

4. Will the study elicit data about subjects engaged in illegal or stigmatizing behaviors (e.g., illicit drug use, child abuse, alcoholism, or gambling)? If so, provide an explanation in the study description. No

5. Does the research involve deception of the subjects by the researcher? If so, discuss why deception is necessary in the study description. No

6. Does the research involve: Non Florida Tech researchers? No
   - Collection of images or audio recordings of the subjects? No
   - Will the study target or exclude a particular gender or ethnic or racial group? No

7. Will the research be conducted outside of the United States? No

Part 4 - Research Description

1. In lay terms, please describe the GENERAL PURPOSE of the study and how human subjects will be involved. List the SPECIFIC AIMS and RESEARCH QUESTIONS or HYPOTHESES.

   The purpose of this pilot study is to gain insights into factors that appear to play an influential role in the professional development of TAs at Florida Tech, particularly those apparent in prior research studies. Toward this end, pilot data will allow me (Goal A) to examine the usefulness of the Florida Tech TA Exit Survey completed prior to graduation and (Goal B) to interview the participants, as needed, for clarification.

2. Outline the INCLUSION CRITERIA for subjects, explaining the rationale for the involvement of any special groups including children, prisoners, pregnant women, or subjects with cognitive impairments. Describe the characteristics of the targeted subjects, including gender, age ranges, ethnic background, and health/treatment status. If women or minorities are excluded, provide written justification. Give the number of subjects you anticipate including from each targeted group listed above.

   All graduate students who have attended the TA Seminar in past years and who have petitioned to graduate in May 2012 will be asked to participate in this research.
C1 IRB Approval and Application

3. Describe sources for potential participants, how subjects will be RECRUITED or the sampling procedures. Attach recruitment advertisements if applicable.

   All graduate students whose name appears on the list of those who have petitioned to graduate in May 2012 cross-referenced with the Rolling List of TA Seminar Completers will be added to the Teaching Assistants May 2012 Exit Group on ANGEL and sent an e-mail message that will include an informed consent statement (attached).

4. Describe any COMPENSATION the subjects will receive, including course credit. If monetary compensation is offered, indicate how much the subjects will be paid and describe the terms of payment.

   There will not be any compensation for participation in this study.

5. Explain how CONFIDENTIALITY and privacy of participant data (and anonymity if appropriate) will be maintained. If the research study involves collection of images or audio recordings of subjects, explain how the materials will be used, who will see the images or hear the recordings, and in what setting.

   All responses from pilot study participants will be coded with an ID number so that I will be the only one who can relate each name to each response. The only reason I have for knowing respondents' names is to be able to link information/data that they provide so that I can follow up with an interview if needed. Further, each response will be kept strictly confidential (i.e., the names will never be used in discussions or reports of this pilot study). As long as data are being used, they will be kept in a locked file, accessible only by me. Finally, I will not keep any of the print information/data gathered for the pilot study. Information/data gathered for the pilot study will be destroyed by May 2015.

6. Describe the study design/research/measurement PROCEDURE (e.g., control and experimental groups, etc.). Indicate whether or not the subjects will be randomized for this study. Discuss how you will conduct your study, and what measurement instruments you are using. Attach a copy of any questionnaires, measurement instruments, interview protocols, or a description of topics or an approximate script that will be used. If not available at this time, explain. Deceptive techniques must be justified by the study's prospective scientific, educational, or applied value, and the investigator should explore equally effective alternative procedures that do not use deception and a debrief form/protocol must be discussed here.

   Please describe your study in enough detail so the IRB can identify what you are doing and why.

   I am using a mixed methods approach involving surveys and follow-up interviews to obtain information/data about Teaching Assistants who have petitioned to graduate in May 2012 and who also have attended the Teaching Assistant (TA) Seminar. The TA Seminar is a 3-day professional training for Teaching Assistants of all disciplines campus-wide (see syllabus and agenda attached). The goal of the training is to prepare attendees to become effective university instructors. The survey (Goal A) asks information about selected demographic characteristics, prior TA/teaching experience, degree program, schedule, TA role, career aspirations, and perceptions of teaching and the TA Seminar. Once obtained, the information from the survey may clarify how valuable the Seminar was to the experienced TAs as they reflect back upon their role as a TA. Further, an analysis of responses to each item in this survey, coupled with clarification interviews about those responses, will provide useful information that can be used to modify and improve this survey for use with future TAs. The interviews (Goal B) will include a set of informational, clarifying, and probing questions that follow from survey responses, and therefore that will be more unique than structured. For this reason, there is no attached protocol for interviews. This part of the investigation will begin to provide previously unknown information about Florida Tech TAs' experience in the field after having been through the TA Seminar.
7. Describe all SITES where this research will take place and attach documentation of permission from the appropriate source if the study involves subjects from places other than common public spaces.

This research will take place on the community group, Teaching Assistants May 2012 Exit Group, within ANGEL (Goal A) and the Florida Tech campus (Goal B).

8. Describe any POTENTIAL RISKS (physical, psychological, social, legal or other) and the steps that will be taken to minimize risk. Where appropriate, discuss provisions for ensuring necessary medical or professional intervention in the event of adverse effects to the subjects. Also, where appropriate, describe the provisions for monitoring the data collected to ensure the safety of subjects. Research involving children must carefully assess risks and describe the safeguards in place to minimize those risks.

There are no anticipated risks associated with participation in this study. Other than the time involved in making information/data sources available, and in information/data collection (interviews), there are no costs associated with participation.

9. Discuss the importance of the knowledge that will result from your study and what benefits will accrue to your subjects (if any). Discuss why the risks to subjects are reasonable in relation to the anticipated BENEFITS to subjects.

The primary benefits for participants include an opportunity to voice questions and concerns about their preparation and experience as a TA. The primary benefits for future TAs include: improvements in the TA seminar; and insights into additional TA professional development needs and opportunities. The primary benefits for the doctoral researcher include: insights I will gain into the professional needs and development of TAs as a whole, in sub-groups (e.g., by College, by gender), and individually; and the use of these insights to design my full dissertation study. The results of the full dissertation study will be made available to those interested in a manner that is mutually acceptable.

10. CONSENT. Informed consent can be in either written or oral format. If you request waiver of informed consent, documentation of informed consent, or of written informed consent, please state your justifications. Attach consent form if applicable. If an oral consent is planned, attach a copy of the text of the statement.

(Consent form should contain all eight elements listed in Part 5).

Waiver of Consent is requested under Federal law Title 45 46.116 (c), which permits the waiver of the requirement of obtaining written prospective informed consent under the following conditions, all of which apply to this pilot study:

- The research poses no more than minimal risk to subjects.
- There are no adverse effects as a result of the waiver or alteration.
- Without the waiver or alteration, the research in question could not be carried out.
- Information about the findings of this pilot study will be provided after participation is completed, as appropriate.
C1 IRB Approval and Application

Part 5 - INSTRUCTIONS FOR DOCUMENTATION OF INFORMED CONSENT

Informed consent is one of the primary ethical requirements underlying human subjects research, reflecting the principle of respect for potential subjects. Informed consent assures that prospective human subjects understand the nature of the research and can decide knowingly and voluntarily whether or not to participate.

Informed consent refers to the voluntary choice of an individual to participate in research based on an accurate and complete understanding of, among other things, its purposes, procedures, risks, benefits, alternatives, and any other factors that may affect a person’s decision to participate.

The basic concepts of the consent process include:

- Full disclosure of the nature of the research and the subject’s participation, adequate comprehension on the part of the potential subject
- Voluntary choice to participate
- Informed consent must be documented by use of a written consent form approved by the IRB and signed by the participant or the participant’s legally authorized representative. A copy should be given to the person signing the form. Even though the IRB has approved a consent procedure, it is the investigator’s responsibility to ensure that each potential subject understands the information and to take the appropriate steps necessary to gain that comprehension.

Individuals may not be involved as research participants unless a) they understand the information that has been provided and informed consent has been obtained, or b) the IRB has approved a waiver for informed consent.

REMEMBER: If the participant is under the age of 18, parental consent is required. This includes college students under the age of 18.

If the research involves the participation of minors (under 18 years of age), read the description of requirements for research involving children. Additional requirements concerning parental consent forms and child assent are discussed.

Please follow the instructions for documentation carefully.

1. The consent form should be written in language that the participants can understand. Whenever possible, simple declarative sentences should be used. Ordinary language should explain technical terms.

2. Avoid the use of exclamatory language through which the subject or the representative is made to waive or appear to waive any of his/her legal rights or release the investigator, sponsor or institution or its agents from liability for negligence.

3. Important information that must be included on the Consent Form:
   a) Purpose of the research
   b) Procedures to be followed (what will the participants be asked to do? Include physical requirements or experimental procedures if applicable.)
   c) Foreseeable risks or discomforts to the subjects. What are the risks associated with participating and what safeguards are in place? Include the following statement, where appropriate:

   “In the event of physical injury resulting from the research procedures, no form of compensation is available. Medical treatment may be provided at your expense or at the expense of your health care...”
IRB Approval and Application

Insurer (i.e., Medicare, Medicaid private payor) which may or may not provide coverage. If you have questions it is your responsibility to contact your Insurer.

d) Benefits to the subject or others which may reasonably be expected to result

c) Alternative procedures or alternatives to participation if any

f) Level of confidentiality of participant records. Is data anonymous? How will data be stored? If audio or visual records are obtained how will they be maintained? Who will have access to the data?

g) Primary investigator’s contact information. Point of contact for questions or problems related to this study.

h) IRB contact. Also note the study was approved by Florida Institute of Technology’s IRB and list the current IRB Chair and his/her contact information for questions about the rights of people who take part in research.

i) Voluntary participation, refusal, and withdrawal. Include the following statement:

“Participation is voluntary. Refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled. You may discontinue participation at any time without penalty or loss of benefits to which you are otherwise entitled.”

j) Signatures, if appropriate. Provide a place for:

a) Signature of the participant (or his/her legally authorized representative)

b) Date of signature

Waiver of Informed Consent

The IRB may approve a consent procedure that does not include, or which alters, some or all of the elements of informed consent outlined above, or waive the requirements to obtain informed consent provided the IRB finds and documents that the following four conditions have been met:

- The research involves no more than minimal risk to the subjects;
- The waiver or alteration will not adversely affect the rights and welfare of subjects;
- The research could not practically be carried out without the waiver or alteration; and
- Whenever appropriate, the subjects will be debriefed — provided with additional pertinent information — after they have participated in the study.
Part 6: SIGNATURE ASSURANCE SHEET

Principal Investigator’s Assurance Statement:

I understand Florida Institute of Technology’s policy concerning research involving human subjects and I agree:

1. to accept responsibility for the scientific and ethical conduct of this research study.
2. to obtain prior approval from the Institutional Review Board before amending or altering the research protocol or implementing changes in the approved consent form.
3. to immediately report to the IRB any serious adverse reactions and/or unanticipated effects on subjects which may occur as a result of this study.
4. to complete, on request by the IRB, a Continuation Review Form if the study exceeds its estimated duration.

PI Signature: ______________________ Date: 2/17/2012

Advisor Assurance: If primary investigator is a student
This is to certify that I have reviewed this research protocol and that I attest to the scientific merit of the study, the necessity for the use of human subjects in the study to the student’s academic program, and the competency of the student to conduct the project.

Major Advisor: ______________________ Date: 2/19/12
Major Advisor (print): Dr. Tom Marcinkowski

Academic Unit Head: It is the PI’s responsibility to obtain this signature
This is to certify that I have reviewed this research protocol and that I attest to the scientific merit of this study and the competency of the investigator(s) to conduct the study.

Academic Unit Head: ______________________ Date: 2/17/12

Academic Unit Head: Dr. Laszlo Baksay

FOR IRB USE ONLY

IRB Approval: ______________________ Date: 3.2.12

Name: ______________________
IRB #: ______________________

Florida Tech IRB: November 2006
C2  Email to request participation

Date: 3/5/2012 4:05:26 PM
From: Delp, Angela
To: All course individuals (GROUP-120206-171015-LEA) (Teaching Assistants May 2012 Exit Group)
Subject: Florida Tech TA Exit Survey

Hello, soon-to-be graduates!
You have been added to the ANGEL community "Teaching Assistants May 2012 Exit Group" in an effort to obtain your responses to the Florida Tech TA Exit Survey before you graduate this May. The survey contains six sections and is designed to collect data about factors that may play an influential role in the professional development of teaching assistants (TAs) at Florida Tech. In responding to the survey, please do not spend a lot of time on any one item. It should take you approximately 25-30 minutes to complete this survey.

- Please read the instructions carefully.
- Please complete all sections and respond to all items.
- I would appreciate receiving your completed survey, if at all possible, by April 1.
- Please note that no one other than me will be able to associate any of your responses with you. The only reason I need to be able to do this would be to arrange for a follow-up interview, if necessary.
- I would contact you to schedule an interview only if I needed to follow-up with you on any of survey responses.
- As with any research study, your participation is voluntary.

If you have any questions, I can be contacted at adel@my.fit.edu or 521-264-1894.

Please follow this link to complete the Florida Tech TA Exit Survey

Thank you for your service as a Teaching Assistant here at Florida Tech, and congratulations on your achievements!

Respectfully,

Angela Marie Delp
Assistant Director of the TA Seminar
Department of Education and Interdisciplinary Studies
C3 Exit Survey

Demographic Information

1. Your Age Range:
   - A) under 20
   - B) 20-24
   - C) 25-29
   - D) 30-34
   - E) 35-39
   - F) 40-44
   - G) 45-49
   - H) 50 and older

2. Your nation of origin (Nationality):

3. Your Ethnicity
   - A) American Indian/Alaskan Native
   - B) Asian/Pacific Islander
   - C) Hispanic
   - D) Black (Non-Hispanic)
   - E) White (Non-Hispanic)
   - F) Bi-racial/Bi-ethnic (any two of these)
   - G) Multiracial/Multiethnic (three or more of these)
   - H) Other (Please describe in #4)

4. If #3 is Other please describe here:

5. What is your native language?

6. If English is not your first (native) language, please indicate whether there were English language-related difficulties over the course of your TA experience.
   a) If so, please describe these difficulties.
   b) As appropriate, please describe how you dealt with these difficulties.
Degree Program and TA Assignment(s)

7. Please select the degree you will be graduating with in May 2012.
   ☐ A) Master’s degree
   ☐ B) Doctoral degree

8. When did you start your graduate studies at Florida Tech? For example: Fall 2007.

9. For which Department/Academic Unit have you served as a TA?

10. Please name each course, year, and number of sections in which you have served as a TA and describe your primary role/responsibilities for each course.
   For example: Physics 2 lab, 2010 (2 sections) & 2011 (3 sections); assisted students with lab work, proctored exams, graded lab reports, and entered attendance & grade records on ANGEL.
   Intro to Paych, 2011 (1 section); designed & implemented Power Point lectures; designed, implemented, & graded tests; and maintained assignments, grades, and handouts on ANGEL.

11. What degree of autonomy/freedom were you given as a TA? In other words- how much of the class material was developed by you? (e.g. syllabus, assignments, lessons, exams, and scoring rubrics)

<table>
<thead>
<tr>
<th>None</th>
<th>Some</th>
<th>Quite a Bit</th>
<th>An Extreme Amount</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

12. Please describe any challenges or difficulties that you have faced in fulfilling your TA responsibilities and your coursework/research as a graduate student.
17. Looking back on your TA experience and what you have gained from those experiences, did your reasons for serving as a TA change over time? If so, how?

Your TA Professional Development

18. Did your academic unit have its own TA training(s)? If yes, then please describe the training(s) and how you did/did not benefit from them.

19. About how often did you interact with your supervisor? What purpose(s) did the meetings with your supervisor serve? If this changed over time, please clarify how it did.
20. Did any faculty or students evaluate your instruction during the time you were a TA? If yes, then (a) who evaluated you; (b) how often did they evaluate you; and (c) what did you learn from the evaluation(s)? For example: I had monthly supervisor observations followed by feedback. My students did midterm and end-of-course evaluations. I learned from both that I speak well, but my board-work is difficult to read.

21. How often did you get help from your Teaching Assistant peers? What help did they provide you?
Perceptions of Teaching, TA Training, and Support

Please respond to each statement in questions #22 through #32 by marking the response that best describes your experiences as a new TA.

22. My Department supervisor(s) were very supportive of my professional development as a TA.
   Strongly agree  Agree  Neutral  Disagree  Strongly disagree  Not sure

23. My Department supervisor(s) have found the TA Seminar to be worthwhile.
   Strongly agree  Agree  Neutral  Disagree  Strongly disagree  Not sure

24. Teaching Assistants in my department have been supportive of my professional development as a TA.
   Strongly agree  Agree  Neutral  Disagree  Strongly disagree  Not sure

25. Teaching Assistants in my department have found the TA Seminar to be worthwhile.
   Strongly agree  Agree  Neutral  Disagree  Strongly disagree  Not sure

26. My work as a Teaching Assistant has been a valuable experience.
   Strongly agree  Agree  Neutral  Disagree  Strongly disagree  Not sure

27. I feel that the TA Seminar was a valuable use of my time.
   Strongly agree  Agree  Neutral  Disagree  Strongly disagree  Not sure

28. I feel that I have received adequate professional support from Florida Tech for my work as a TA.
   Strongly agree  Agree  Neutral  Disagree  Strongly disagree  Not sure

29. I have confidence in my teaching ability.
   Strongly agree  Agree  Neutral  Disagree  Strongly disagree  Not sure

30. I receive satisfaction from teaching.
   Strongly agree  Agree  Neutral  Disagree  Strongly disagree  Not sure

31. I prefer research/projects over teaching.
   Strongly agree  Agree  Neutral  Disagree  Strongly disagree  Not sure

32. I prefer practicing in my field over teaching.
   Strongly agree  Agree  Neutral  Disagree  Strongly disagree  Not sure
Reflection upon TA experience

In looking back on your TA work over the entirety of your TA experience,

33. In which area(s) of your work as a TA have you grown the most?

34. In your estimation, what has contributed to this growth? Please describe major factors or influences.

35. Which areas of your work did you experience the greatest challenge(s)?
36. In your estimation, what do you think would be an appropriate or effective way to address these challenges?

37. What have you liked the most about your work as a TA?

38. What have you liked the least about your work as a TA?

39. What do you intend to do professionally after you graduate?
Feedback about this survey

46. Please indicate whether you had any difficulty answering any of these survey items accurately. Which, if any, of the questions in this survey were confusing or unclear?
C4  Report: Pilot Study of Graduating GTAs

The purpose of this retrospective pilot study (exit pilot) was to gain insight regarding the professional development and concerns of GTAs as they conclude their appointments at Florida Tech (see Appendix C1). The accessible population for the exit pilot was all GTAs who had attended the GTA Seminar on record in past 6 years and who had petitioned to graduate in May 2012. Forty-nine GTAs fit these criteria. All 49 were enrolled in the Teaching Assistants May 2012 Exit Group on ANGEL and sent an email message that described the pilot study and invited them to participate (see Appendix C2). A total of 27 (55%) responded to the survey. The participants spanned three age groups: ages 20-24 (n = 8), 25-29 (n = 15), and 30-34 (n = 4). The participant group included seven U.S. males, 10 U.S. females, six international males, and four international females (Table C.3, p. 467). The international GTAs were from a variety of countries: South Africa, Burkina Faso, Nigeria, India, Lebanon, China, Germany, Trinidad, and Great Britain. All of the U.S. participants were Caucasian. Six participants did not claim English as their native language. Twenty- three of the participants were enrolled in a master’s program, while four were enrolled in a doctoral program. Sixteen were in the College of Science, seven in the College of Engineering, and four in the School of Psychology.
Table C.2

Comparison of Exit Pilot Participants and Florida Tech GTA Demographics
Campus-Wide in 2012

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Exit Pilot (N = 27)</th>
<th>Florida Tech (N = 122)</th>
<th>% Difference (S%-FT%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>13 (48.1%)</td>
<td>77 (63.1%)</td>
<td>(-15.0%)</td>
</tr>
<tr>
<td>Female</td>
<td>14 (51.9%)</td>
<td>45 (36.9%)</td>
<td>(+15.0%)</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20-24</td>
<td>8 (29.6%)</td>
<td>54 (44.2%)</td>
<td>(-14.6%)</td>
</tr>
<tr>
<td>25-29</td>
<td>14 (51.6%)</td>
<td>38 (31.1%)</td>
<td>(+20.5%)</td>
</tr>
<tr>
<td>30-34</td>
<td>4 (14.8%)</td>
<td>18 (14.8%)</td>
<td>(0.0%)</td>
</tr>
<tr>
<td>35-39</td>
<td>0 (0.0%)</td>
<td>5 (4.1%)</td>
<td>(-4.1%)</td>
</tr>
<tr>
<td>40-44</td>
<td>0 (0.0%)</td>
<td>5 (4.1%)</td>
<td>(-4.1%)</td>
</tr>
<tr>
<td>45-49</td>
<td>0 (0.0%)</td>
<td>1 (0.8%)</td>
<td>(-0.8%)</td>
</tr>
<tr>
<td>50+</td>
<td>0 (0.0%)</td>
<td>1 (0.8%)</td>
<td>(-0.8%)</td>
</tr>
<tr>
<td>Nationality</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>USA</td>
<td>17 (63.0%)</td>
<td>80 (65.6%)</td>
<td>(-2.6%)</td>
</tr>
<tr>
<td>International</td>
<td>10 (37.0%)</td>
<td>42 (34.4%)</td>
<td>(+2.6%)</td>
</tr>
<tr>
<td>Ethnicity of USA TAs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>(0.0%)</td>
</tr>
<tr>
<td>Black</td>
<td>0 (0.0%)</td>
<td>3 (2.5%)</td>
<td>(-2.5%)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>0 (0.0%)</td>
<td>7 (5.7%)</td>
<td>(-5.7%)</td>
</tr>
<tr>
<td>White</td>
<td>17 (63.0%)</td>
<td>61 (50.0%)</td>
<td>(+13.0%)</td>
</tr>
<tr>
<td>Unknown</td>
<td>0 (0.0%)</td>
<td>9 (7.4%)</td>
<td>(-7.4%)</td>
</tr>
<tr>
<td>Multiracial</td>
<td>0 (0.0%)</td>
<td>3 (2.5%)</td>
<td>(-2.5%)</td>
</tr>
<tr>
<td>Degree Program</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Master’s</td>
<td>23 (85.2%)</td>
<td>61 (50.0%)</td>
<td>(+35.2%)</td>
</tr>
<tr>
<td>Doctorate</td>
<td>4 (14.8%)</td>
<td>61 (50.0%)</td>
<td>(-35.2%)</td>
</tr>
</tbody>
</table>

Note. *(S%-FT%) = Percentage of Entrance Pilot minus percentage of Florida Tech.

Data collection methods. The exit pilot employed a mixed-methods approach involving a survey and follow-up interviews with these 27 participants. The survey, delivered by ANGEL and campus mail, asked for information about selected demographic characteristics, degree program, schedule, TA role, career
aspirations, teaching concerns, challenges, and perceptions of teaching and the GTA (see Appendix C3).

**Data analysis methods.** Responses to the Exit Survey were entered into Excel columns starting with the respondent code number and followed by each subsequent survey item. This was done so that responses to the same item could be compared across several different respondents. Responses to open-ended essay items were clustered together into categories. All of these descriptive results were further analyzed to identify high and low frequencies of responses, and similarities in open-ended responses across survey items.

**Results.** Participants were asked about their professional support and instructional feedback by open-ended questions. These questions included whether they had: participated in departmental trainings, received student evaluation feedback, received faculty observation feedback, met on a regular basis with supervisors, and relied on peers for help. Table C.4 (page 469) details the participants’ responses to professional support questions.

I noticed that several participants named what professional support they did receive, but did not mention what they did not receive. To clarify whether this was an oversight on their part or whether they actually did not receive the support that they did not mention, I contacted all cases that only named what professional support was received. I sent a follow-up question to 11 participants asking whether
Table C.3

**Forms of Professional Support or Feedback During TA Service—Exit Survey Results**

<table>
<thead>
<tr>
<th>Professional Support or Feedback</th>
<th>COE(^a) ((N = 7))</th>
<th>COPLA(^b) ((N = 4))</th>
<th>COS(^c) ((N = 16))</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Departmental Training</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Received</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>Did not receive</td>
<td>7 (25.9%)</td>
<td>3 (11.1%)</td>
<td>8 (29.6%)</td>
</tr>
<tr>
<td>No response</td>
<td>0 (0.0%)</td>
<td>1 (3.7%)</td>
<td>2 (7.4%)</td>
</tr>
<tr>
<td>Confused response</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>2 (7.4%)</td>
</tr>
<tr>
<td><strong>Communication with Supervisor</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Often</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>2 (7.4%)</td>
</tr>
<tr>
<td>More than once a week</td>
<td>2 (7.4%)</td>
<td>1 (3.7%)</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>Once a week</td>
<td>3 (11.1%)</td>
<td>2 (7.4%)</td>
<td>8 (29.6%)</td>
</tr>
<tr>
<td>Every other class</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>1 (3.7%)</td>
</tr>
<tr>
<td>Every two weeks</td>
<td>1 (3.7%)</td>
<td>0 (0.0%)</td>
<td>2 (7.4%)</td>
</tr>
<tr>
<td>As needed</td>
<td>0 (0.0%)</td>
<td>1 (3.7%)</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>Depended on supervisor</td>
<td>1 (3.7%)</td>
<td>0 (0.0%)</td>
<td>3 (11.1%)</td>
</tr>
<tr>
<td><strong>Faculty Observation Feedback</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Received</td>
<td>2 (7.4%)</td>
<td>1 (3.7%)</td>
<td>3 (11.1%)</td>
</tr>
<tr>
<td>Did not receive</td>
<td>4 (14.8%)</td>
<td>3 (11.1%)</td>
<td>13 (48.1%)</td>
</tr>
<tr>
<td>No response</td>
<td>1 (3.7%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td><strong>Midterm Evaluations</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Received</td>
<td>0 (0.0%)</td>
<td>1 (3.7%)</td>
<td>12 (44.4%)</td>
</tr>
<tr>
<td>Did not receive</td>
<td>6 (22.2%)</td>
<td>3 (11.1%)</td>
<td>4 (14.8%)</td>
</tr>
<tr>
<td>No response</td>
<td>1 (3.7%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td><strong>End of Course Evaluations</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Received</td>
<td>2 (7.4%)</td>
<td>3 (11.1%)</td>
<td>13 (48.1%)</td>
</tr>
<tr>
<td>Did not receive</td>
<td>4 (14.8%)</td>
<td>1 (3.7%)</td>
<td>3 (11.1%)</td>
</tr>
<tr>
<td>No response</td>
<td>1 (3.7%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td><strong>Help from Peers</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Received</td>
<td>3 (11.1%)</td>
<td>2 (7.4%)</td>
<td>13 (48.1%)</td>
</tr>
<tr>
<td>Infrequently received</td>
<td>1 (3.7%)</td>
<td>0 (0.0%)</td>
<td>2 (7.4%)</td>
</tr>
<tr>
<td>Did not receive</td>
<td>3 (11.1%)</td>
<td>1 (3.7%)</td>
<td>1 (3.7%)</td>
</tr>
<tr>
<td>No response</td>
<td>0 (0.0%)</td>
<td>1 (3.7%)</td>
<td>0 (0.0%)</td>
</tr>
</tbody>
</table>

Note. \(^a\)COE = College of Engineering; \(^b\)COPLA = College of Psychology and Language Arts; \(^c\)COS = College of Science.

or not they received a certain form of professional support that they declined to mention on the survey (e.g., student evaluations, faculty observation feedback).

Nine of these 11 participants responded that they did not receive feedback they did not mention. Therefore, when respondents did not name a certain type of feedback
they received in the open-ended question, then this was interpreted in my results as not having received that type of feedback. Responses such as “Not applicable” or “I don’t know” were counted as no response. The departmental training question drew answers from a few GTAs in which they described the GTA Seminar. These responses were categorized as confused responses.

The results of the professional support portion of the Exit Survey indicated that less than a quarter of the participants had a departmental training (14.8%). A small number responded that they received supervisor or faculty observation feedback (18.5%). Just over half of the participants (66.6%) received end-of-course student evaluations. Over half of the GTAs communicated with their supervisors at least once a week (67%) and sought help from their peers (78%).

Exit pilot participants were asked open-ended questions about the challenges they faced and their growth as GTAs (Table C.5, p. 471). Two of these questions asked about challenges and difficulties. In the first question, the highest rated challenge was time (37%), followed by students (27%). On the second question, the highest rated response was troubles with the students (52%), followed by grading-related challenges (19%), and concerns about asserting authority (11%). When asked about how they had grown professionally in their work as a GTA, statements about improving communication abilities and leadership abilities each had the most responses at 14 each (52%). Following up on that question, participants were asked what contributed to this growth, and 15 responded with
# Summary of Open-Ended Responses to Exit Survey

<table>
<thead>
<tr>
<th>Question</th>
<th>Response Clusters</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>11. Describe any challenges or difficulties you have faced.</td>
<td>-Time</td>
<td>10</td>
<td>37%</td>
</tr>
<tr>
<td></td>
<td>-Students</td>
<td>8</td>
<td>27%</td>
</tr>
<tr>
<td></td>
<td>-None</td>
<td>6</td>
<td>22%</td>
</tr>
<tr>
<td>32. In which areas have you grown the most?</td>
<td>-Communication</td>
<td>14</td>
<td>52%</td>
</tr>
<tr>
<td></td>
<td>-Leadership</td>
<td>14</td>
<td>52%</td>
</tr>
<tr>
<td></td>
<td>-Time management</td>
<td>2</td>
<td>7%</td>
</tr>
<tr>
<td></td>
<td>-Grading</td>
<td>1</td>
<td>4%</td>
</tr>
<tr>
<td></td>
<td>-Working well as a team</td>
<td>1</td>
<td>4%</td>
</tr>
<tr>
<td>33. What contributed to this growth?</td>
<td>-Experience/Practice</td>
<td>15</td>
<td>56%</td>
</tr>
<tr>
<td></td>
<td>-Students</td>
<td>6</td>
<td>22%</td>
</tr>
<tr>
<td></td>
<td>-Feedback</td>
<td>3</td>
<td>11%</td>
</tr>
<tr>
<td></td>
<td>-Learning styles</td>
<td>1</td>
<td>4%</td>
</tr>
<tr>
<td>34. Which areas of your work did you experience the greatest challenges?</td>
<td>-Difficulties with students</td>
<td>14</td>
<td>52%</td>
</tr>
<tr>
<td></td>
<td>-Grading</td>
<td>5</td>
<td>19%</td>
</tr>
<tr>
<td></td>
<td>-Authority</td>
<td>3</td>
<td>11%</td>
</tr>
<tr>
<td></td>
<td>-Deficiencies</td>
<td>3</td>
<td>11%</td>
</tr>
<tr>
<td></td>
<td>-Language</td>
<td>2</td>
<td>7%</td>
</tr>
<tr>
<td>35. What would be an appropriate way to address these challenges?</td>
<td>-Experience/Practice</td>
<td>5</td>
<td>19%</td>
</tr>
<tr>
<td></td>
<td>-Provide more help to students</td>
<td>5</td>
<td>19%</td>
</tr>
<tr>
<td></td>
<td>-Advice from others</td>
<td>5</td>
<td>19%</td>
</tr>
<tr>
<td></td>
<td>-Be strict with students</td>
<td>4</td>
<td>15%</td>
</tr>
<tr>
<td></td>
<td>-Uniform grading</td>
<td>3</td>
<td>11%</td>
</tr>
<tr>
<td></td>
<td>-Provide more equipment/people</td>
<td>2</td>
<td>7%</td>
</tr>
<tr>
<td>36. What have you liked the most about your work as a TA?</td>
<td>-Students</td>
<td>17</td>
<td>63%</td>
</tr>
<tr>
<td></td>
<td>-Self-improvement</td>
<td>7</td>
<td>26%</td>
</tr>
<tr>
<td></td>
<td>-Teaching</td>
<td>2</td>
<td>7%</td>
</tr>
<tr>
<td></td>
<td>-Working with professors</td>
<td>1</td>
<td>4%</td>
</tr>
<tr>
<td>37. What have you liked the least about your work as a TA?</td>
<td>-Problems arising from students</td>
<td>7</td>
<td>26%</td>
</tr>
<tr>
<td></td>
<td>-Grading</td>
<td>7</td>
<td>26%</td>
</tr>
<tr>
<td></td>
<td>-Time</td>
<td>5</td>
<td>19%</td>
</tr>
<tr>
<td></td>
<td>-Deficiencies</td>
<td>3</td>
<td>11%</td>
</tr>
<tr>
<td></td>
<td>-Conflicts</td>
<td>2</td>
<td>7%</td>
</tr>
</tbody>
</table>

*Note. N = 27.*
comments relating to experience or practice (56%). They were then asked what they thought would be an effective way to address these challenges. Five GTAs responded with comments relating to getting experience or practice (19%), five recommended offering more help to students (19%), and five suggested getting advice from others (19%).

**Summary of pilot studies.** These pilot studies provided evidence regarding GTA training and supervision, concerns, and strategies for addressing those concerns. First, the pilot study of entering GTAs generated evidence that at least half of the participants who entered the GTA Seminar lacked prior teaching experience. Further, none of those participants reported receiving any additional training from their departments for their GTA assignment. The Exit Survey results supported the view that very few Florida Tech GTAs receive departmental training—only 4 of the 27 mentioned it. Further, many of the supervisors whom I interviewed during the entrance pilot were not observing their GTAs teach and therefore could not comment on their performance in the classroom over the course of the semester. Of the 27 Exit Survey respondents, only 6 reported they had been observed by faculty, whereas 13 saw their midterm evaluations, and 18 saw their end-of-course evaluations. If these findings reflect the norm for GTAs who receive assignments at Florida Tech, then less than half typically receive any additional useful professional development or feedback beyond the GTA Seminar. Further study is needed to determine the current status of both professional development
for and provision of feedback to Florida Tech GTAs, as well as how beneficial further professional development and feedback during the GTA experience could be with respect to GTA development.

Second, both the entrance pilot and exit pilot participants voiced three main concerns about their GTA assignments. In order of relative frequency these were: their students, time management, and grading. These concerns varied in intensity over the course of the semester for the entrance pilot participants. However, these GTAs’ concerns with students remained on the forefront of their minds. The exit pilot participants also expressed concerns about students far more often than any other concern (Table C.6, p. 474). Because these concerns were mentioned by both groups of GTAs, at the beginning and at the end of their assignments, it appears logical to question how many GTAs had any opportunity to address these issues with the assistance of professional support over the course of their GTA experience.

Third, a majority of the exit pilot participants (15 of 27) did mention their experience or practice contributed to their growth as a GTA (Table C.5, p. 471). Five of the exit pilot participants recommended experience or practice as a solution to overcoming challenges. Due to their preference to learn by experience and their need to address issues as they occur, further investigation of the benefit of professional development and feedback during their GTA assignments appears to be needed and justified.
Table C.5

Summary of Results on Teaching Concerns from Exit Pilot Study of Graduate Teaching Assistants (GTAs) at Florida Tech

<table>
<thead>
<tr>
<th>Concerns&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Frequency of Response</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>#11: Difficulties&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Students</td>
<td></td>
</tr>
<tr>
<td>Lack of interest or motivation</td>
<td>3</td>
</tr>
<tr>
<td>Irresponsible</td>
<td>3</td>
</tr>
<tr>
<td>Disruptive</td>
<td>0</td>
</tr>
<tr>
<td>Cheating</td>
<td>0</td>
</tr>
<tr>
<td>Language barriers</td>
<td>1</td>
</tr>
<tr>
<td>Special needs</td>
<td>1</td>
</tr>
<tr>
<td>Academic weakness</td>
<td>0</td>
</tr>
<tr>
<td>Lie to trick authority</td>
<td>0</td>
</tr>
<tr>
<td>Time</td>
<td></td>
</tr>
<tr>
<td>Balance grading and own work</td>
<td>4</td>
</tr>
<tr>
<td>Balance TA duties and own work</td>
<td>5</td>
</tr>
<tr>
<td>Creating/writing courses or labs</td>
<td>1</td>
</tr>
<tr>
<td>Grading</td>
<td></td>
</tr>
<tr>
<td>Large numbers of work</td>
<td>0</td>
</tr>
<tr>
<td>Criticisms by students and/or faculty</td>
<td>1</td>
</tr>
<tr>
<td>Many types of student errors</td>
<td>0</td>
</tr>
<tr>
<td>Fairness/subjectiveness</td>
<td>0</td>
</tr>
<tr>
<td>Nonspecific</td>
<td>0</td>
</tr>
</tbody>
</table>

<sup>a</sup>Concerns = TAs’ remarks about the things they frequently think of and would like to do something about in regards to teaching (Fuller & George, 1978).
<sup>b</sup>Difficulties = GTAs’ problems in fulfilling TA work and coursework/research asked by item 11 on Exit Survey.
<sup>c</sup>Difficulties = areas of work GTAs experienced the greatest challenge asked by item 34 on Exit Survey.
<sup>d</sup>Liked Least = what GTAs liked least about work as a TA asked by item 37 on Exit Survey.

Note. N = 27.
Appendix D

Primary Study

D1  IRB approval, p. 472
D2  Teaching Assistant Seminar Syllabus and Agenda, p. 481
D3  Emails to request participation, p. 485
D4  Consent form, p. 487
D5  Request for revision approvals, p. 489
D1 IRB Approval and Application

Institutional Review Board Office
Dr. Lisa Steelman, Chair IRB
150 West University Blvd.
Melbourne, FL 32909
(321) 674-8104
lsteelma@fit.edu
http://www.fit.edu/research/compass/irb/index.html

Notice of Expedited Review Status

From: Florida Tech Institutional Review Board
FWA00014339, Exp. 4/11/2017, IRB00001690

To: Angela Delp

Date: August 31, 2012

IRB Number: 12-887

Study Title: The impact of coaching and video viewing on self-reflections, concerns, and practice of teaching among FIT graduate TA: 2012

Dear Researcher,

Your research protocol was reviewed and approved by the IRB Chairperson. Per federal regulations, 45 CFR 46.110, your study has been determined to involve no more than minimal risk for human subjects. Federal regulations define minimal risk to mean that the probability and magnitude of harm are no more than would be expected in the daily life of a normal, healthy person.

Unless you have received a waiver of consent, participants must sign a consent form, and the IRB requests you give each participant a copy of the consent form for their records. For online surveys, please advise participants to print out the consent screen for their files.

All data, which may include signed consent form documents, must be retained in a locked file cabinet for a minimum of three years (six if HIPAA applies) past the completion of this research. Any links to the identification of participants should be maintained on a password-protected computer if electronic information is used. Access to data is limited to authorized individuals listed as key study personnel.

Procedural changes or amendments must be reported to the IRB, and no changes may be made without IRB approval except to eliminate apparent immediate hazards. Please use the Request for Revision form located on the IRB website.

This study is approved for one year from the above date. If data collection continues past this date, a Continuing Review Form must be submitted.
D1 IRB Approval and Application

Florida Institute of Technology

RESEARCH INVOLVING HUMAN SUBJECTS
Expedited/Full Application

This information listed below should be submitted to Florida Tech's IRB if the proposed research has more than minimal risk (none of the Exempt conditions apply) or if the research utilizes a special population (children, prisoners, institutionalized individuals, etc.).

Part 1 – General Information

Title of Project: The Impact of Coaching and Video-viewing on the Self-reflections, Concerns, and Practice of Teaching Among Florida Tech Graduate Teaching Assistants 2012

Date of Submission: August 22, 2012

Expected Project Start Date: August 29, 2012

Expected Project Duration: 1 semester

Principal Investigator: Angela Delp

Title: PhD student & Assistant Director of TA Seminar

Academic Unit: Dept. of Education & Interdisciplinary Studies

Phone: Office: (321) 674-7527 Home: (321) 674-4348

Email: adelp207@my.fit.edu

Co Investigator:

Title: 

Academic Unit: 

Phone: 

Email: 

Co Investigator:

Title: 

Academic Unit: 

Phone: 

Email: 

Part 2 - Project Sponsorship Information (current or planned)

1. Is the research to be funded with federal funds, or are federal funds being applied for?

   No

   If yes, please provide one copy of the grant proposal.

2. Is the research to be funded by a private sponsor?

   No

1
D1  IRB Approval and Application

Part 3 - Other Study Information

1. Is this a clinical research project? (Definition: Clinical Research Involving Human Subjects means any research or medical procedure involving human subjects or the use of human samples for the development and evaluation of patient therapies, such as diagnostic tests, drug therapies, or medical devices. It includes clinical trials.)
   No

2. Do any project personnel receive incentives for recruiting human subjects or for any other purpose directly related to the study?
   Yes

3. Does the research involve the collection of data concerning minors (18 years or under)?
   No

4. Prioners?
   No

5. Fetus, pregnant women, or Information about human in vitro fertilization?
   No

6. The cognitively impaired?
   No

7. Subjects who are institutionalized (e.g., in a mental health facility, nursing home, or halfway house)?
   No

8. Will the study elicit data about subjects engaged in illegal or stigmatizing behaviors (e.g., illicit drug use, child abuse, alcoholism, or gambling)? If so, provide an explanation in the study description.
   No

9. Does the research involve deception of the subjects by the researcher? If so, discuss why deception is necessary in the study description.
   No

10. Does the research involve:

    a. Non Florida Tech researchers?
       No

    b. Collection of images or audio recordings of the subjects?
       No

    c. Will the study target or exclude a particular gender or ethnic or racial group?
       No

    d. Will the research be conducted outside of the United States?
       No

Part 4 - Research Description

1. In lay terms, please describe the GENERAL PURPOSE of the study and how human subjects will be involved. List the SPECIFIC AIMS and RESEARCH QUESTIONS or HYPOTHESES.

   The purpose of this pilot study is to investigate the impact of coaching and/or video-watching on the self-reflections, concerns, and teaching practices of those TA Seminar attendees who will be serving as TAs over the course of the Fall '12 semester and who volunteer to participate in this study.

   The following are my research questions:

   1. What effect, if any, does each of the four treatments have on the nature and level of reflections by GTAs at Florida Tech?

   2. What effect, if any, does each of the four treatments have on the concerns of GTAs at Florida Tech?

   3. What effect, if any, does each of the four treatments have on the teaching practices of GTAs at Florida Tech?

   4. Of the four treatments used in this study, which has had the greatest positive impact on self-reflection, concerns, and practices of GTAs:

      a) of different genders?
      b) with different native languages and cultures?
      c) in different academic fields?
      d) with different teaching backgrounds?
D1  IRB Approval and Application

2. Outline the INCLUSION CRITERIA for subjects, explaining the rationale for the involvement of any special
groups including children, prisoners, pregnant women, or subjects with cognitive impairments. Describe the
characteristics of the targeted subjects, including gender, age ranges, ethnic background, and health/treatment
status. If women or minorities are excluded, provide written justification. Give the number of subjects you
anticipate including from each targeted group listed above.

All graduate students enrolled in the Fall "12 TA Seminar will be asked to grant access to Background
Information Survey responses, and information generated during this TA Seminar.
Only those TA Seminar attendees who will have a TA appointment in Fall "12 and who will be teaching over
the full course of Fall "12 semester will be invited to participate in the quasi-experimental part of this study.
Those who meet these criteria and who volunteer to participate will be added into the "Reflection Study
Group" community on ANGEL, and randomly assigned to one of four groups: Non-video, Non-coached
Reflection (NVCR), Non-video, Coached Reflection (CVR), and Non-
coached Video Reflection.

3. Describe sources for potential participants, how subjects will be RECRUITED or the sampling procedures.
Attach recruitment advertisement/s if applicable.
The source for potential participants is the Fall 2012 TA Seminar. TA Seminar attendees will be
informed of this research by a briefing on August 10th and by follow-up emails. Those who volunteer to
participate will be sent a Cover letter and Consent form via email thereafter (see attached Letter and Form).

4. Describe any COMPENSATION the subjects will receive, including course credit. If monetary compensation is
offered, indicate how much the subjects will be paid and describe the terms of payment.
There will be no additional compensation for TAs who volunteer to participate in this study, although I plan to
offer an incentive to participate in this quasi-experimental study. A total of $200 in incentives will be made
available. Participants in each of the four groups who complete all data collection components will have a
cash option to win up to $50 in gift cards (i.e., either one card for $50, or two cards for $25). At the end of the Fall
"12 semester, there will be a raffle drawing for these gift cards among eligible participants.

5. Explain how CONFIDENTIALITY and privacy of participant data (and anonymity if appropriate) will be
maintained. If the research study involves collection of images or audio recordings of subjects, explain how
the material will be used, who will see the images or hear the recordings, and in what setting.

All responses from each group of study participants will be coded with an ID number so that I will be the
only one who can relate each name to each response. The only reason I have for knowing the
respondents’ names is to be able to link information/data that they provide at different times and in different
ways (e.g., Background Information Survey, Reflection Journals, student evaluations, observations, and/or
interviews). Further, each response will be kept strictly confidential (i.e., the names will never be used in
discussions or reports of this pilot study). As long as data are being used, they will be kept in a locked file
(hard copies) or password-protected file (electronic copies), accessible only by me. Finally, I will not keep
any of the print information/data gathered for this study. Information/data gathered for this study as part of
the TA Seminar will be returned to Seminar administrators and files, while all other hard, video, and digital
copies of information/data gathered for this study will be kept for a period of 3 years following the
completion of this study, and then destroyed.

6. Describe the study design/research/measurement PROCEDURE (e.g., control and experimental groups,
...). Indicate whether or not the subjects will be randomized for this study. Discuss how you will conduct your
study, and what measurement instruments you are using. Attach a copy of any questionnaires, measurement
instruments, interview protocols, or a description of topics or an approximate script that will be used. If not
available at this time, explain. Descriptive techniques must be justified by the study's prospective scientific,
educational, or applied value, and the investigator should explore equally effective alternative procedures that
do not use deception and a debriefing method must be discussed here.
Please describe your study in enough detail so the IRB can identify what you are doing and why.
D1 IRB Approval and Application

I am using a mixed-methods approach involving observations, interviews, survey instruments, video recording, reflection journals, and document analysis to obtain information/data about Teaching Assistants who have attended the Fall 2012 Teaching Assistant (TA) Seminar and then volunteer to participate in this study. The TA Seminar is a 3-day mandatory professional training for Teaching Assistants of all disciplines campus-wide (see syllabus and agenda attached). For several years, it has been the standard practice of the university to require the participation and completion of all Seminar presentations and documentation before the TAs take on their respective teaching assignments. The goal of the Seminar is to prepare attendees to become effective university instructors.

Before arriving to participate in the training on August 8, 2012, all attendees were asked to fill out a background information survey on ANGEL (attached), so that their needs may be assessed before entering the seminar. This survey asks information about selected demographic characteristics, prior teaching experience, degree program, schedule, TA role, career aspirations, and perceptions of teaching and the TA Seminar. Once obtained, the information from this survey may clarify how varied the Seminar attendees are in their readiness and ability to take on a TA appointment before they begin—as indicated in the research literature, missing but very important pieces of information to have when designing and offering training programs to assist TAs in their professional development. Further, an analysis of responses to last item in this survey, coupled with analyses of any survey item(s) referred to in those responses, will provide useful information that can be used to modify and improve this survey for use in future TA Seminars. I will be seeking TAs permission to access their completed background information surveys for use in this study, as indicated on the attached Consent Form.

The TA Seminar consists of morning presentations on the roles and responsibilities of instructors by Florida Tech faculty, which may then prepare attendees for their afternoon sessions of Microteaching. Each afternoon, the TA Seminar attendees meet their assigned groups, teach micro lessons in their discipline, and critique each other. The critiques are recorded using Microteaching evaluation sheets. After the in-class discussion of each micro-lesson, each attendee is required to complete a semi-structured Microteaching reflection essay. I will be seeking TAs permission to access these Microteaching reflections for use in this study, as indicated on the attached Consent Form.

On the morning of the third day of the Seminar (August 10, 2012), I presented an outline of my study for attendees. They had the opportunity to ask questions about my research, although the few that did posed questions about their own eligibility to participate in this study.

Once I have received approval from the IRB to proceed, I will use e-mail to contact those who have TA appointments in the Fall ’12. They will be provided with a cover letter and consent form that explains how once they have volunteered to participate, they will be divided among four groups: Non-video, Non-coached Reflection (NONCR), Non-video, Coached Reflection (NVCR), Coached Video Reflection (CVR), and Non-coached Video Reflection (NCVR). All participants in these four groups will be added to the ANGEL community, ‘Reflection Study Group.’ This ANGEL group will provide the means to collect responses to the Teacher Concerns Checklist before and after the quasi-experiment is run, as well as reflective journal entries, to include each of the three classroom observations conducted as part of the study.

For all participants, I will arrange a schedule of classroom observations to take place three times over the course of the semester. The length of each observation will vary, depending on the length of each class and/or lab (e.g., from 60 minutes to 3 hours).

For those participants in the video groups, (CVR and NCVR), I will videotape each while teaching at three different times over the Fall ’12 semester (i.e., September, October, and late October/November). Then I will provide these videotapes to my participants via Dropbox. The participants in the video groups will then be asked to view them, reflect upon the experience, and write about it in their reflection journal.
IRB Approval and Application

For coached groups (NVCR and CVR), I also plan to schedule and conduct interviews before (pre) and after (post) each scheduled observation. These interviews will focus primarily on teaching concerns and instructional goals on the date of the observation. The estimated time commitment for each pre and each post interview will be about 20 minutes, so the total estimated time commitment for the three pre and post interviews will be about 2 hours.

In part because most interview questions will be tied to observations, each interview will include a set of informational, clarifying, and probing questions that will be more unique than structured. For this reason, there is no attached protocol for interviews. This part of the investigation will begin to provide previously unknown information about the impact of videotaping and/or coaching on the self-reflection, concerns, and practice of teaching among Florida Tech GTAs.

In addition to seeking access to specific data collected as part of the TA Seminar as mentioned above, the instruments to be administered during this study are appended to this application form, and include:

- the Teacher Concerns Questionnaire (to be administered online);
- the Teaching Assistant Post-Seminar Observation Form; and
- the Reflection Journal entries (to be administered online).

7. Describe all SITES where this research will take place and attach documentation of permission from the appropriate source if the study involves subjects from places other than common public spaces.

   This research will take place on the Florida Tech campus.

8. Describe any POTENTIAL RISKS (physical, psychological, social, legal or other) and the steps that will be taken to minimize risk. Where appropriate, discuss provisions for ensuring necessary medical or professional intervention in the event of adverse effects to the subjects. Also, where appropriate, describe the provisions for monitoring the data collected to ensure the safety of subjects. Research involving children must carefully assess risks and describe the safeguards in place to minimize these risks.

   There are no anticipated risks associated with participation in this study. Other than the time involved in making information/data sources available, and in information/data collection (observations and accompanying interviews); there are no costs associated with participation.

9. Discuss the importance of the knowledge that will result from your study and what benefits will accrue to your subjects (if any); Discuss why the risks to subjects are reasonable in relation to the anticipated BENEFITS to subjects.

   The primary benefits for TA Seminar participants include an opportunity to: voice questions and concerns as a TA, and improve performance and professional development as a TA. The primary benefits for other future TAs include: improvements to the Background Information Survey; Improvements in the TA seminar, Departmental training of TAs, and faculty supervision of TAs; and Insights into additional TA professional development needs and opportunities. The primary benefits for the doctoral researcher include: insights I will gain into the professional needs and development of TAs as a whole, in sub-groups (e.g., by College, by gender), and individually; and the use of these insights to design my full dissertation study. The results of the full dissertation study will be made available to those interested in a manner that is mutually acceptable.

10. CONSENT. Informed consent can be in either written or oral format. If you request waiver of informed consent, documentation of informed consent, or of written informed consent, please state your justifications. Attach consent form if applicable. If an oral consent is planned, attach a copy of the text of the statement. (Consent form should contain all eight elements listed in Part 5).
D1 IRB Approval and Application

Part 5 - INSTRUCTIONS FOR DOCUMENTATION OF INFORMED CONSENT

Informed consent is one of the primary ethical requirements underlying human subjects research, reflecting the principle of respect for potential subjects. Informed consent assures that prospective human subjects understand the nature of the research and can decide knowledgeably and voluntarily whether or not to participate.

Informed consent refers to the voluntary choice of an individual to participate in research based on an accurate and complete understanding of, among other things, its purposes, procedures, risks, benefits, alternatives, and any other factors that may affect a person's decision to participate.

The basic concepts of the consent process include:

- Full disclosure of the nature of the research and the subject's participation, adequate comprehension on the part of the potential subject
- Voluntary choice to participate
- Informed consent must be documented by use of a written consent form approved by the IRB and signed by the participant or the participant's legally authorized representative. A copy should be given to the person signing the form. Even though the IRB has approved a consent procedure, it is the investigator's responsibility to ensure that each potential subject understands the information and to take the appropriate steps necessary to gain that comprehension.

Individuals may not be involved as research participants unless a) they understand the information that has been provided and informed consent has been obtained, or b) the IRB has approved a waiver for informed consent.

REMEMBER: If the participant is under the age of 18, parental consent is required. This includes college students under the age of 18.

If the research involves the participation of minors (under 18 years of age), read the description of requirements for research involving children. Additional requirements concerning parental consent forms and child assent are discussed.

Please follow the instructions for documentation carefully.

1. The consent form should be written in language that the participants can understand. Whenever possible, simple declarative sentences should be used. Ordinary language should explain technical terms.

2. Avoid the use of euphemistic language in which the subject or the representative is made to waive or appear to waive any of his/her legal rights or release the investigator, sponsor or institution or its agents from liability for negligence.

3. Important information that must be included on the Consent Form:
   a) Purpose of the research
   b) Procedures to be followed (what will the participants be asked to do? Include physical requirements or experimental procedures if applicable.)
   c) Foreseeable risks or discomforts to the subjects. What are the risks associated with participating and what safeguards are in place? Include the following statement, where appropriate:

   "In the event of physical injury resulting from the research procedures, no form of compensation is
IRB Approval and Application

available. Medical treatment may be provided at your expense or at the expense of your health care insurer (i.e., Medicare, Medicaid private payer) which may or may not provide coverage. If you have questions it is your responsibility to contact your insurer.

d) Benefits to the subject or others which may reasonably be expected to result

e) Alternative procedures or alternatives to participation if any

f) Level of confidentiality of participant records. Is data anonymous? How will data be stored? If audio or visual records are obtained how will they be maintained? Who will have access to the data?

g) Primary investigator’s contact information. Point of contact for questions or problems related to this study.

h) IRB contact. Also note the study was approved by Florida Institute of Technology’s IRB and list the current IRB Chair and his/her contact information for questions about the rights of people who take part in research.

i) Voluntary participation, refusal, and withdrawal. Include the following statement:

"Participation is voluntary. Refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled. You may discontinue participation at any time without penalty or loss of benefits to which you are otherwise entitled."

j) Signatures, if appropriate. Provide a place for:

a) Signature of the participant (or his/her legally authorized representative)

b) Date of signature

Waiver of Informed Consent

The IRB may approve a consent procedure that does not include, or which alters, some or all of the elements of informed consent outlined above, or waive the requirements to obtain informed consent provided the IRB finds and documents that the following four conditions have been met:

- The research involves no more than minimal risk to the subjects;
- The waiver or alteration will not adversely affect the rights and welfare of subjects;
- The research could not practicably be carried out without the waiver or alteration; and
- Whenever appropriate, the subjects will be debriefed — provided with additional pertinent information — after they have participated in the study.
Part 6: SIGNATURE ASSURANCE SHEET

Principal Investigator's Assurance Statement:
I understand Florida Institute of Technology's policy concerning research involving human subjects and
I agree:
1. to accept responsibility for the scientific and ethical conduct of this research study.
2. to obtain prior approval from the Institutional Review Board before amending or altering the research protocol
   or implementing changes in the approved consent form.
3. to immediately report to the IRB any serious adverse reactions and/or unanticipated
   effects on subjects which may occur as a result of this study.
4. to complete, on request by the IRB, a Continuation Review Form if the study exceeds
   its estimated duration.

PI Signature __________________________ Date 8/22/12

Advisor Assurance: If primary investigator is a student
This is to certify that I have reviewed this research protocol and that I attest to the scientific merit of the study, the
necessity for the use of human subjects in the study to the student's academic program, and the competency of
the student to conduct the project.

Major Advisor __________________________ Date 8/22/12
Major Advisor (print) Dr. Tom Marcinkowski

Academic Unit Head: It is the PI's responsibility to obtain this signature
This is to certify that I have reviewed the research protocol and that I attest to the scientific merit of this study and
the competency of the investigator(s) to conduct the study.

Academic Unit Head __________________________ Date 8/27/12
Academic Unit Head Dr. Laszlo Baikay

FOR IRB USE ONLY

IRB Approval __________________________________________ Date 6-31-12

IRB # 12-057

Florida Tech IRB: November 2006
Teaching Assistant Seminar Syllabus

Goal of Seminar: Attendees will learn strategies and skills to become effective university instructors.

Objectives of the Seminar:

Attendees will:

- Write measurable objectives at different levels of Bloom's Taxonomy
- Develop assessments that align with stated course objectives
- Identify their own learning style and discuss the impact of learning styles in the classroom
- Explain the importance of having an organized class
- Evaluate good and bad characteristics of public speaking
- Describe characteristics for persuasion and relate them to teaching
- Create a “Learning Friendly Environment” during microteaching lessons
- Design a plan or strategy to deal with conflicts that may occur in the classroom
- Explain the role of non-verbal communication in the classroom
- Make use of various teaching strategies to improve instructional communication
- Evaluate peers teaching using a rubric of effective teaching strategies

Expectations & Requirements:

All sessions within this seminar are vital to the development of a teaching assistant; therefore, you are required to abide by the attendance policy. Daily sign-in is mandatory to maintain records of your attendance.

All participants will be divided into small groups of 6-8 people led by a microteaching facilitator who is either a faculty member or an experienced TA. Each person will teach a 10 minute lesson, give a 3-4 minute assessment, and hold a 1-2 minute discussion of assessment answers. The topic of every lesson should be appropriate for your discipline. During the microteaching lessons, the facilitator and non-presenting participants will act as a student audience. You will receive feedback from the facilitator and others, summarized by the microteaching facilitator. You are required to attend, actively participate, and evaluate all lessons presented in your group.
D2 Teaching Assistant Seminar Syllabus and Agenda

Assignments & Deadlines on ANGEL

Required assignments to successfully complete the seminar include one quiz and nine electronic documents. The documents will be submitted on a daily basis via digital drop box by the assigned DEADLINE provided in ANGEL:

- 1 public speaking quiz worth 5 points; you must achieve mastery by 8:00am Thursday, August 9
  - Included is a Youtube video module
- 3 lesson plans worth 20 points each (Feedback will be provided; resubmissions may be required to access the next lesson plan drop box)**
  - First lesson plan due in Lesson plan 1 drop box by 5:30pm Wednesday, August 8
  - Second lesson plan due in Lesson plan 2 drop box by 8:45am Thursday, August 9
  - Third lesson plan due in Lesson plan 3 drop box by 8:45am Friday, August 10
- 3 reflective journal entries worth 10 points each
  - Day 1 Microteaching reflective journal entry by 6:00pm Wednesday, August 8
  - Day 2 Microteaching reflective journal entry by 6:00pm Thursday, August 9
  - Day 3 Microteaching reflective journal entry by 6:00pm Friday, August 10
- 3 Seminar evaluations due by midnight each day of the seminar for a completion grade of 5 points each. All submissions are anonymous.

** You will receive feedback on your lesson plans to help you master the art of aligning your curriculum by the following times: 8:30pm Wednesday for the 1st lesson plan, 11am Thursday for the 2nd lesson plan, and 11am Friday for the 3rd lesson plan. You are required to make suggested corrections to your lesson plan before the next microteaching session in order to achieve mastery and successful completion of the seminar.

*** These documents will take time outside of the scheduled seminar to complete and requires a computer with internet access. ***
D2 Teaching Assistant Seminar Syllabus and Agenda

Attendance & Microteaching Evaluations
Attendance for seminar presentations and Microteaching evaluation grades for all three days will be entered manually into the A.N.G.E.L. grade book. Seminar evaluations will be recorded as completion grades and are confidential.

Seminar Completion & Professionalism Reports
Following the seminar, departments will be provided with a report of all TA Seminar attendees. The report will include identifying those that successfully complete the seminar (completers) as well as remarks on professionalism and overall potential as an instructor. Professionalism includes timeliness of submissions of required seminar work, respectfulness as an audience member, and active participation in all presentations and microteaching sessions. Certificates of completion will be sent to the departments for all completers.
Teaching Assistant Seminar Syllabus and Agenda

Day One – Wednesday, August 8

8:00 - 8:15 Sign In
8:15 - 8:30 Welcome/Announcements Dr. R.G. Layne & Dr. Kurt Winkelmann
8:30 - 10:20 Aligning Curriculum Prof. Debra Blenis
10:20 - 10:30 Break
10:30 - 11:00 Microteaching: Choosing a 10min topic Dr. Cecilia Knoll
11:00 - 11:15 ANGEL Prep Ms. Angela Delp
11:15 - 2:00 Lunch & Plan/Practice (on your own)
2:00 - 5:30 Microteaching 1**

5:30 p.m. - Lesson Plan 1 due in corresponding drop box for Microteaching 1

Day Two – Thursday, August 9

8:45 a.m. - Lesson Plan 2 due in drop box for Microteaching 2
8:45 - 9:00 Sign In
9:00 - 9:15 Announcements
9:15 - 10:15 Learning Styles Dr. Frank Webbe
10:15 - 10:30 Break
10:30 - 11:15 Effectiveness in Teaching Dr. Gordon Patterson
11:30 - 12:30 Teaching Assistant Seminar Luncheon
12:30 - 2:15 Communicating Across Cultures Prof. Debra Blenis
2:30 - 5:30 Microteaching 2

Day Three – Friday, August 10

8:45 a.m. - Lesson Plan 3 due in drop box for Microteaching 3
8:45 - 9:00 Sign In
9:00 - 9:30 Research Ms. Angela Delp
9:30 - 11:00 TA Roles and Responsibilities Dr. Mau/ Dr. Windsor/ Dr. Lazarus
11:00 - 11:15 Break
11:15 - 12:30 Support Services on Campus Mr. Rod Newcombe/ Dr. Robyn Tapley
12:30 - 12:45 Recognition
12:45 - 2:00 Lunch & Practice (on your own)
2:00 - 5:30 Microteaching 3

* Participants: Participation in this seminar is by invitation only to graduate students with new teaching or lab assistantships. All participants must have the approval of their respective departments.

** Microteaching: Teaching Assistants (TAs) are divided into small groups of 5-7 participants led by a microteaching facilitator who is either a faculty member or an experienced TA. Each TA will teach a 10 minute topic-appropriate lesson, give a 3-4 minute assessment, and hold a 1-2 minute discussion of assessment answers. During the microteaching lessons, the facilitator and the non-presenting TAs will act as a student audience. The TAs will receive feedback from the facilitator and the other TAs on individual evaluation sheets, which will be summarized by the microteaching facilitator.
D3  Emails to request participation

Date:  8/31/2012 2:21:57 PM
From:  Delp, Angela
To: Team: Fall 2012 (TEACHING ASSISTANT RESOURCES GROUP) (Teaching Assistant Resources)
Cc: Fennell, Angela
Attachments: Consent_form_TAs_Video_study.doc
Subject: Research

Hello, Fellow Graduate Students!

Recently, I was given approval to go forward with my research by Florida Tech’s Institutional Review Board.

Now, I am contacting you to find out if you are willing and eligible to participate in my research. My criteria for eligible participants are that each TA:
- has attended the Fall 2012 TA Seminar;
- has a TA contract for the Fall 2012 semester; and
- will be responsible for teaching throughout the Fall 2012 semester.

Participants who complete all data collection components will have a chance to win a gift card worth up to $50 (i.e., either one card for $50 or two cards for $25 per group). At the end of the Fall ‘12 semester, all eligible participants in each group will be entered into a raffle drawing for their group’s gift card(s).

Please respond to this email to let me know (a) whether or not you meet the criteria above, and (b) whether or not you would be willing to participate in my research this Fall. My consent form is attached so that you may learn more about the nature and details of my study.

If you fit all of the criteria above and are willing to participate in this study, also please provide me with the following information:
- your TA class schedule;
- your own class schedule;
- the syllabus for the class(es) in which you TA; and
- the testing schedule for the class(es) for which you serve as TA.

I thank you for your time and consideration, and would be honored to have this opportunity to work with you.

Respectfully,

Angela Marie Delp
Assistant Director of the TA Seminar
PhD Student, Department of Education and Interdisciplinary Studies
Hello, Fellow Graduate Students!

I hope you had an enjoyable labor day weekend! If you have already responded to me about whether or not you are able to participate in my research, then please disregard this email. Otherwise, please respond to me as soon as possible.

I have attached two versions of my consent form: one to accept participation and one to decline participation. For those of you who agree to participate, you may electronically sign the "Consent form Agree to participate" attached and send it back to me. For those of you who decline to participate, you may simply tell me so via email OR electronically sign the "Consent form Do not wish to participate." The latest Adobe Reader, version 10.1.4, should provide you the means to sign the consent form. If you have any questions, then feel free to email me.

If electronic signature does not work for you, then you may print, sign, and scan the consent form to email to me or you may simply print, sign, and campus mail it to me. Also, I am more than willing to provide printed versions of the consent form for you to sign. I can arrange to meet you wherever you are so that the only effort you have to make is a signature. I will do whatever it takes to make this an easy, time-conscious process!

Whatever your response to my request for your participation, I will log the information so that you may stop receiving recruitment emails from me once you have given me a response, so please respond with your answer even if it is to decline to participate.

As a reminder, participants who complete all data collection components will have a chance to win a gift card worth up to $50 (i.e., either one card for $50 or two cards for $25 per group). At the end of the Fall '12 semester, all eligible participants in each group will be entered into a raffle drawing for their group's gift card(s).

I thank you for your time and consideration, and would be honored to have this opportunity to work with you!

Respectfully,

Angela Marie Delp
Assistant Director of the TA Seminar
Department of Education and Interdisciplinary Studies
Informed Consent Form
TA Video/Coaching Study, Fall 2012

1. What is the purpose of this study? The purpose of this study is to investigate the impact of coaching and/or videotaping on the self-reflections, concerns, and practice of teaching among those TA Seminar attendees who serve as TAs over the course of the Fall ’12 semester.

2. How were you chosen? Only those who meet the following criteria will be eligible to participate in this study: A) attended Fall 2012 Seminar; B) have a TA contract for Fall ’12; and C) have ongoing teaching responsibility over the course of the Fall ’12 semester.

3. What is involved in participating? Once you have consented to participate, you will be added into the “Reflection Study Group” community on ANGEL and randomly assigned to one of four groups: Non-video, Non-coached Reflection (NVCR); Non-video, Coached Reflection (NVR); Coached Video Reflection (CVR); and Non-coached Video Reflection (NCVR). Every participant in each group will be asked to reflect on their teaching experiences each time they are observed teaching and write these reflections in an online reflection journal, which will only be accessed and read by you and me.

For all groups, I plan to schedule and conduct 3 observations of you in your TA role over the Fall ’12 semester. The length of each observation will vary, depending on the length of each class and/or lab (e.g., from 30 minutes to 3 hours). No additional time commitment will be sought on the day of each scheduled observation other than the time you need to complete an entry in the reflection journal.

For video groups (CVR and NCVR), I will videotape your classroom teaching. Then I will provide each video to these participants via Dropbox. The participants in the video groups will then be asked to view them, reflect upon the experience, and write about it in their reflection journal.

For coached groups (NVCR and CVR), I also plan to schedule and conduct interviews before (pre) and after (post) each observation. These interviews will focus primarily on your instructional goals/objectives, teaching practices, and teaching concerns. Your estimated time commitment for each pre and each post interview will be about 20 minutes, so your total estimated time commitment for the three pre and post interviews will be about 2 hours.

In summary, I plan to access or gather, and use, the following kinds of information/data:

- your background Information Survey responses, and additional demographic data through the office of Institutional Research;
- your Microteaching Reflection Journal entries;
- your responses to the Teacher Concerns Questionnaire before and after the experiment;
- three observations of your classroom teaching experience over the Fall semester;
- your reflection journal entries on your Fall ’12 classroom teaching experience;
- three video recordings of your Fall ’12 classroom teaching experience (if in CVR and NCVR);
- your comments during six informal interviews (if in NVCR or CVR) conducted over the Fall ’12 semester; and
- your midterm and end-of-course student evaluations.

4. How will your participation be kept anonymous and confidential? Your responses will be coded with an ID number so that I will be the only one who can relate your name to your responses. The only reason I have for knowing your name is to be able to link information/data that you provide at different times and in different ways (e.g., Background Information Survey, Microteaching Reflection Journal, observations, and interviews). Further, your response will be kept strictly confidential; your name will never be used in any discussion or report of this study. As long as data are being used, they will be kept in a locked file, accessible only by me. Information/data gathered from the TA Seminar will be returned to TA Seminar administrators and files, while all hard copies of information/data gathered for pilot study will be kept for a period of three years following the end of this study to comply with university and federal regulations, and data destroyed.
5. What are the risks and benefits associated with participating? There are no anticipated risks associated with your participation in this study. Other than the time involved in information/data collection (observations and accompanying interviews), there are no costs associated with your participation. The primary benefits for you include your opportunity to: voice your questions and concerns as a TA; engage in further professional development; and improve your performance as a TA. In addition, each participant who completes all data collection components will have the chance to win a gift card worth up to $50 in a raffle at the end of the Fall '12 semester (i.e., either one card for $50 or two cards for $25 each). The primary benefits for other future TAs include: improvements to the TA seminar and insights into additional TA professional development needs and opportunities. The primary benefits for me, as doctoral researcher, include: insights I will gain into the professional needs and development of TAs as a whole, in groups, and individually.

6. How will this information be used? At present, it is not clear if videotape and/or coaching would be valuable enhancements to the professional development of TAs. This investigation should help to answer this question by uncovering both deficiencies and successes of existing training programs such as the TA Seminar and Departmental trainings, which may be used to further enhance these trainings. In addition, the data collected for this study will be used to complete and defend my doctoral dissertation. The results of the full dissertation study will be made available to those who request it in a manner that is mutually agreeable. Finally, I reserve the right to report the results of this dissertation study to university personnel who may have some role in decisions about any enhancement to the TA Seminar, at professional conferences, and in journal articles.

7. What are your rights as a participant? You may ask me any questions at any time about this study and they will be answered to your satisfaction (see below). Your participation in this study is voluntary. You may choose not to participate, and you may withdraw from this study at any time if you do not feel comfortable. Not participating in this research project will have no effect on any aspect of your personal or professional life, including your position as a TA.

8. Who do you contact for more information? If you have any questions about this project you can contact the following by phone or email:

- Angela Delp (Ph.D. Student). E-mail: ndelp2007@my.fit.edu, Phone: (321) 674-7527
- Dr. Tom Marcinkowski (Ph.D. Advisor). E-mail: marcinko@fit.edu, Phone: (321) 674-8946

If you would rather, you may pose your questions to Florida Tech's Institutional Review Board Office at (321) 674-8104 or email, Dr. Lisa Steelman, IRB Chair, at lstelman@fit.edu.

Please verify that each of these conditions is true for you by checking each box.

☐ I have read and understand this informed consent statement.
☐ I meet all eligibility criteria to participate in this study.

Please indicate whether you do or do not agree to voluntarily participate in this study by checking one box.

☐ I agree to participate in this research study.
☐ I do not wish to participate in this research study.

_____________________________  _______________________________
Your Signature                        Today's Date

_____________________________
Your Name (please print)

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D5   Request for revision approvals

Institutional Review Board Office
Dr. Lisa Shemeru, IRB Chair
School of Psychology
(305) 501-3024
lshemeru@fit.edu
http://www.fit.edu/pco/search/committee/irbindex.html

Florida Institute of Technology

Request for Revision

Use this form to report any changes to a previously approved protocol or consent form. Changes must be approved by the IRB prior to their implementation.

1. Principal Investigator Name
   Angela Delp

   Title of Project
   The impact of coaching and video viewing on the self-reflections, concerns, and practice of teaching among FIT Graduate TAs

   IRB Number

2. Does this revision increase risks to participants enrolled in the study?
   [ ] Yes
   [x] No

3. Describe revision requested:

   In order to address the aims of completing this consent form, I plan to accept both physical and electronic signatures. I will obtain these signatures by sending a PDF of my consent form to my possible participants that they may either electronically fill out and sign or print, fill out, sign, and return via campus mail or scanned copy. I will keep copies of signed consent forms, electronic and scanned, on my password-protected USB drive. If I receive any print versions in campus mail, then I will scan them and save them on the secure USB drive.

   Also, I intend to use DVDs in addition to Dropbox in order to provide participants with a copy of the video recordings. This provides me an alternative if the participants do not wish to use Dropbox to retrieve their video recordings.

4. Attach revised protocol and/or consent (highlight all revisions):

   Signature of PI: [Signature] Date: 9/4/12

   Signature of Major Advisor: [Signature] Date: 9/4/12

   (If PI is a Student)

   For IRB Use:

   [ ] Approved
   [ ] Not Approved
   [ ] Approved Pending Changes

   IRB Approval: [Signature] Date: 9/4/12

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D5 Request for revision approvals

Florida Institute of Technology

Institutional Review Board Office
Dr. Lisa Steckler, IRB Chair
School of Psychology
(3) 434-3184
lsteckler@fit.edu
http://www.fit.edu/research/committees/irb/index.html

Request for Revision

Use this form to report any changes to a previously approved protocol or consent form. Changes must be approved by the IRB prior to their implementation.

1. Principal Investigator Name: Angela Dahl
   Title of Project: The impact of coaching and video viewing on the self reflections, concerns, and practice of teaching among FIT Graduates 17Am
   IRB Number: 12-057

2. Does this revision increase risks to participants enrolled in the study? [ ] Yes [x] No

3. Describe revision requested:
   In order to encourage more Teaching Assistants to participate in this research, I intend to change the control group into a group where people only fill out the Teacher Concerns Questionnaire at the beginning and end of the semester. Also, I will pay those four control group people each $25. I will have 12 participants for the other three groups, whom will each be paid $50 to participate.
   Also, I intend to send out the attached survey, “Research Follow-Up,” to all of the people who didn’t respond or gave a negative response to my requests for participation in this research.

4. Attach revised protocol and/or consent (highlight all revisions):
   I have attached a copy of my current consent form. If you believe the change in incentives warrants a change to the form, then please notify me.

Signature of PI: [Signature]
Date: 9-18-2012

Signature of Major Advisor: [Signature]
Date: [Signature]

For IRB Use:

[ ] Approved
[ ] Not Approved
[ ] Approved Pending Changes

IRB Approval: [Signature]
Date: 9-18-2012
Appendix E

Instruments

E1 Background Information Survey (BIS), p. 492
E2 Research follow-up survey, p. 499
E3 Microteaching journals
  GTA Seminar Day one, p. 500
  GTA Seminar Day two, p. 501
  GTA Seminar Day three, p. 502
E4 Teacher Concerns Questionnaire (TCQ), p. 503
E5 Teaching Assistant Post-Seminar Observation Form, p. 506
E6 Reflection journals
  Round one reflection journal, p. 507
  Round two reflection journal, p. 508
  Round three reflection journal, p. 509
E1 Background Information Survey (BIS)

Demographic Information

1. Your Age Range:
   - A) under 20
   - B) 20-24
   - C) 25-29
   - D) 30-34
   - E) 35-39
   - F) 40-44
   - G) 45-49
   - H) 50 and older

2. Your nation of origin (Nationality)

3. Your Ethnicity
   - A) American Indian/Alaskan Native
   - B) Asian/Pacific Islander
   - C) Hispanic
   - D) Black (Non-Hispanic)
   - E) White (Non-Hispanic)
   - F) Bi-racial/Bi-ethnic (any two of these)
   - G) Multiracial/Multiethnic (three or more of these)
   - H) Other (Please describe in #4)

4. If #3 is Other please describe here:

5. What is your native language?

6. If English is not your first (native) language, please describe your preparation in written and spoken English.
Degree Program and TA Assignment

7. Which best describes your primary reason for being at Florida Tech?
   ☐ A) Earning a Master’s degree
   ☐ B) Earning a Doctorate
   ☐ C) Working on a postdoctoral assignment
   ☐ D) Preparing for an adjacent faculty assignment
   ☐ E) Preparing for a TA supervision assignment
   ☐ F) Other (please describe in #8)

8. If #7 is Other please describe here:

9. In which degree program are you enrolled in as a student?

10. For how many credit hours will you be enrolled as a student in Fall 2012? Select the range your number falls within.
   ☐ A) 0
   ☐ B) 1-3
   ☐ C) 4-6
   ☐ D) 7-9
   ☐ E) 10-12
   ☐ F) More than 12
   ☐ G) Not sure

11. For which Department/Academic Unit will you serve as a TA for Fall 2012?
   If you will not be serving as a TA in the Fall 2012 semester, please type none.

12. For how many fall and separate courses (not sections) will you be serving as a TA in Fall 2012?
   ☐ A) 0
   ☐ B) 1
   ☐ C) 2
   ☐ D) 3
   ☐ E) 4
   ☐ F) More than 4
   ☐ G) Not sure

13. Please name each course in which you will serve as a TA and describe your role/responsibility for each course as one of the following: 1. Full responsibility; 2. Partial responsibility; 3. Grading only; 4. Lab assistant; 5. Not sure. For example: Introduction to XGC #2 (Full responsibility).
   If you have no courses to name, skip to #17.

14. In the first named course in #13, for how many sections will you be serving as a TA in Fall 2012? If you did not name a course, skip to #17.
15. In the second named course in #13, for how many sections will you be serving as a TA in Fall 2012? If there is no second course, skip to #17.

16. In the third named course in #13, for how many sections will you be serving as a TA in Fall 2012? If there is no third course, skip to #17.

17. Apart from the courses in which you are enrolled as a student and in which you will serve as a TA, do you have any other time commitments Monday through Friday? If yes, please name and briefly describe each in the space below. For example: Tutoring: I tutor Algebra I at Florida Air Academy from 3-6pm Mondays and Wednesdays. Child care: I help my kids with their homework Mon-Fri 7-8pm.

18. Please read over the list of possible reasons for accepting a TA position. Answer "agree" to those reasons that apply to you and "disagree" to those reasons that do not apply to you.

<table>
<thead>
<tr>
<th>Reason</th>
<th>Agree</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial reasons</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aid in the achievement of career goals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Desire to learn new skills</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enjoy the interaction with the students</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interest in the content area</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Department promotes TA experiences</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Looks good on a CV</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

19. Please provide any other reasons for accepting a TA position not covered in #18.
20. Consider your reasons from #18 and #19. Please rank your top three (3) reasons for accepting a TA position, where: 1 = your most important reason; 2 = your next most important reason; and 3 = your third most important reason.

21. Does your department have its own TA training? If yes, about how long is the training? If you do not know whether your department has a training and/or how long, write don’t know.

Prior Teaching Experience

22. Please select the response that provides your best estimate of the number of semesters in which you have served as a college/university TA.
   - A) 0
   - B) 1-2
   - C) 3-4
   - D) 5-6
   - E) More than 6

23. If your response to #22 is greater than 0, please describe your previous work as a TA (e.g., type of college/university; degree program and/or subject area; your roles/responsibilities).
24. Please select the range that provides your best estimate of the number of school semesters in which you have had any other classroom teaching experience.

- A) 0
- B) 1-2
- C) 3-4
- D) 5-6
- E) More than 6

25. If your response to #24 is greater than 0, please describe your previous experience(s) as a teacher (e.g., type of institution or program, subject, age or grade level).

26. If your response to #22 and/or #24 is greater than 0, what did you like most about teaching and/or TAing?

27. If your response to #22 and/or #24 is greater than 0, what did you like least about teaching and/or TAing?
Perceptions of Teaching, TA Training, and Support

Please respond to each statement in questions #28 through #36 by marking the response that best describes your experiences as a new TA.

28. My Department supervisor(s) have been very enthusiastic about my becoming involved in the TA Seminar.
   - Strongly disagree
   - Disagree
   - Neutral
   - Agree
   - Strongly agree
   - Not sure

29. Teaching Assistants in my department who have completed the TA Seminar were pleased about my being able to attend the TA Seminar.
   - Strongly disagree
   - Disagree
   - Neutral
   - Agree
   - Strongly agree
   - Not sure

30. My graduate student friends (other than TAs) have been supportive of my attending the TA Seminar.
   - Strongly disagree
   - Disagree
   - Neutral
   - Agree
   - Strongly agree
   - Not sure

31. My Department supervisor(s) have provided me with useful information about the TA Seminar.
   - Strongly disagree
   - Disagree
   - Neutral
   - Agree
   - Strongly agree
   - Not sure

32. I feel that the TA Seminar will be a valuable use of my time.
   - Strongly disagree
   - Disagree
   - Neutral
   - Agree
   - Strongly agree
   - Not sure

33. I have confidence in my teaching ability.
   - Strongly disagree
   - Disagree
   - Neutral
   - Agree
   - Strongly agree
   - Not sure

34. I receive satisfaction from teaching.
   - Strongly disagree
   - Disagree
   - Neutral
   - Agree
   - Strongly agree
   - Not sure

35. I prefer research/projects over teaching.
   - Strongly disagree
   - Disagree
   - Neutral
   - Agree
   - Strongly agree
   - Not sure

36. I prefer practicing in my field over teaching.
   - Strongly disagree
   - Disagree
   - Neutral
   - Agree
   - Strongly agree
   - Not sure

37. What do you intend to do professionally once you graduate?

38. What do you need, want, and/or expect to gain from attending the TA Seminar? Please clarify which are wants, needs, and expectations.

39. What is your philosophy on teaching? In other words, what do you believe one must do in order to teach effectively?
Feedback about this survey

40. Please indicate whether you had any difficulty answering any of those survey items accurately. Which, if any, of the questions in this survey were confusing or unclear?

HTML Editor

< Previous

 Done

498
Research follow-up survey

If you have trouble viewing or submitting this form, you can fill it out online:
https://docs.google.com/a/my.fit.edu/spreadsheet/viewform?formkey=dC84dW5c2aEjZWWURd1J2LjdMjJtZ2c6MQ

Research Follow-Up

I am seeking clarification on the availability of graduate students to participate in my research or other forms of professional development outside of the Teaching Assistant Seminar. If you have only one reason and it is included in the list below, please check it. If there is more than one reason, then please check your top 2 or 3 reasons. If your reason does not appear in the list, then type your reason inside the “Other” box. Please submit your responses by October 10th.

Your my.fit.edu username will be recorded when you submit this form.

What barriers do you have in being able to participate in professional development programs while you teach? *
- I don’t presently teach
- I don’t have the time available
- I don’t have the interest
- I have other responsibilities that take priority
- I have taught before and do not feel I need to participate
- The presence of an observer in my classroom is too stressful for me
- The materials of my classroom are confidential
- My superiors keep me too busy to participate
- My superiors do not support this use of my time
- Other: __________

Please select your academic unit from the given list *

- BIO-Biology

- Send me a copy of my responses.

Submit
E3 Microteaching Journal—GTA Seminar Day 1

1. On a scale of one to ten, please rate how well you implemented your lesson today (1 being very poorly and 10 being extremely well).
   1  2  3  4  5  6  7  8  9  10

2. Please reflect on your first microteaching session and then share your experience below. To help you, here are some questions you may choose to answer. It is not necessary to answer all, but these should help you get started.
   What were the positive and negative aspects of your lesson today?
   Are you as familiar/comfortable with the content as you thought you would or should be?
   Were you comfortable with your lesson plan and your level of preparation to teach this lesson? (time, support materials, etc.) Why or why not?
   Were you comfortable teaching this lesson? Why or why not?
   Did you feel that your students were engaged in your lesson? (were they able to follow you AND did you actively seek out their participation?) Why or why not?
   Did you feel comfortable with your body language, speech, and/or visual aids? Please explain.
   What would you do differently if you were to reteach this lesson?
Microteaching Journal—GTA Seminar Day 2

1. On a scale of one to ten, please rate how well you implemented your lesson today (1 being very poorly and 10 being extremely well).

   1 2 3 4 5 6 7 8 9 10

2. Please reflect on your second microteaching session and share your experience below. To help you, here are some questions you may want to consider. It is not necessary to answer all, but these should help you get started.

   - Was this lesson an improvement compared to your first microteaching lesson? How?
   - How were you able to incorporate different learning styles into your lesson?
   - Were you more comfortable with your lesson plan and your level of preparation to teach this lesson?
   - What do you still need to change or work on?
   - Do you feel that the “students” learned? What evidence did you receive for this?
   - Were you more comfortable teaching this lesson than the last one? Why or why not?
   - What difficulties did you have (if any) in getting your students to participate in class? How did you remedy the situation?
E3 Microteaching Journal—GTA Seminar Day 3

1. On a scale of one to ten, please rate how well you implemented your lesson today (1 being very poorly and 10 being extremely well).

2. In your opinion, what makes a person effective at teaching?

3. Please reflect on your last microteaching session and share your experience below. To help you, here are some questions you may want to consider. It is not necessary to answer all, but these should help you get started.
   - How has your confidence in teaching changed over the three lessons?
   - Were you able to hold your students’ attention during the entire lesson?
   - If so, how did you accomplish this? If not, what did you do to correct it?
   - Did you feel that students responded to you differently during this lesson than previous ones?
   - What were your most striking improvements?
   - What might you still need to work on?
   - How do you intend to continually improve your effectiveness as a teaching assistant?
E4 Teacher Concerns Questionnaire (TCQ)

1. Directions: This checklist is designed to explore what teachers are concerned about at different points in their careers. There are, of course, no right or wrong answers; each person has his or her own concerns.

I consider you to be “concerned” about a thing if you think about it frequently and would like to do something about it personally. You are not concerned about a thing simply because you believe it is important — if it seldom crosses your mind, or you are satisfied with the current state of affairs, do not say you are concerned about it. You may be concerned about problems, but you may also be concerned about opportunities which could be realized. You may be concerned about things you are not currently dealing with, but only if you anticipate dealing with them and frequently think about them from this point of view. In short, you are concerned about it if you often think about it and would like to do something about it.

☐ A) I have read and understood the above

Next >

Done

Read each statement, then ask yourself, WHEN I THINK ABOUT MY TEACHING, HOW MUCH AM I CONCERNED ABOUT THIS?

2. Lack of instructional materials

<table>
<thead>
<tr>
<th>Not concerned</th>
<th>A little concerned</th>
<th>Moderately concerned</th>
<th>Very concerned</th>
<th>Extremely concerned</th>
</tr>
</thead>
</table>

3. Feeling under pressure too much of the time

<table>
<thead>
<tr>
<th>Not concerned</th>
<th>A little concerned</th>
<th>Moderately concerned</th>
<th>Very concerned</th>
<th>Extremely concerned</th>
</tr>
</thead>
</table>

4. Doing well when a supervisor is present

<table>
<thead>
<tr>
<th>Not concerned</th>
<th>A little concerned</th>
<th>Moderately concerned</th>
<th>Very concerned</th>
<th>Extremely concerned</th>
</tr>
</thead>
</table>

5. Meeting the needs of different kinds of students

<table>
<thead>
<tr>
<th>Not concerned</th>
<th>A little concerned</th>
<th>Moderately concerned</th>
<th>Very concerned</th>
<th>Extremely concerned</th>
</tr>
</thead>
</table>

6. Too many noninstructional duties

<table>
<thead>
<tr>
<th>Not concerned</th>
<th>A little concerned</th>
<th>Moderately concerned</th>
<th>Very concerned</th>
<th>Extremely concerned</th>
</tr>
</thead>
</table>

7. Diagnosing student learning problems

<table>
<thead>
<tr>
<th>Not concerned</th>
<th>A little concerned</th>
<th>Moderately concerned</th>
<th>Very concerned</th>
<th>Extremely concerned</th>
</tr>
</thead>
</table>

Copyright © 1978 Research and Development Center for Teacher Education, The University of Texas at Austin. Reprinted by Angela Fennell with permission from SEDL on behalf of Archie A. George.
<table>
<thead>
<tr>
<th></th>
<th>Feeling more adequate as a teacher</th>
<th>Challenging unmotivated students</th>
<th>Being accepted and respected by professional persons</th>
<th>Working with too many students each day</th>
<th>Guiding students toward intellectual and emotional growth</th>
<th>Whether each student is getting what he/she needs</th>
<th>Getting a favorable evaluation of my teaching</th>
<th>The routine and inflexibility of the teaching situation</th>
<th>Maintaining the appropriate degree of class control</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not concerned</td>
<td></td>
<td>Not concerned</td>
<td>Not concerned</td>
<td>Not concerned</td>
<td>Not concerned</td>
<td>Not concerned</td>
<td>Not concerned</td>
<td>Not concerned</td>
</tr>
<tr>
<td></td>
<td>A little concerned</td>
<td></td>
<td>A little concerned</td>
<td>A little concerned</td>
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<td>A little concerned</td>
<td>A little concerned</td>
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<td></td>
<td>Moderately concerned</td>
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<td>Extremely concerned</td>
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<td>Extremely concerned</td>
<td>Extremely concerned</td>
<td>Extremely concerned</td>
<td>Extremely concerned</td>
</tr>
</tbody>
</table>
17. Please use the space below for any comments or to express additional concerns.
### Teaching Assistant Post-Seminar Observation Form

Date:

Code number for TA: ___________________________ Name of Observer: ___________________________

Tally the number of times the subject complied (+) and did not comply (-) to the statement below:

<table>
<thead>
<tr>
<th>TA's Lesson Plan</th>
<th>+</th>
<th>-</th>
<th>Other</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. lesson objectives displayed on board/PowerPoint</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. instruction is aligned with objectives</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. assessment is aligned with objectives</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TA's Effectiveness &amp; Use of Visual Aids</th>
<th>+</th>
<th>-</th>
<th>Other</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. lesson well prepared &amp; organized</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. introduced the topic to the class</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. demonstrated subject matter knowledge</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. use of whiteboard/visual aids is effective</td>
<td></td>
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</tr>
<tr>
<td>5. obtained a good rapport with students (use of names)</td>
<td></td>
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<td></td>
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<tr>
<td>6. engaged students (questions, role play, etc.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. allowed ~3-5 seconds wait time following questions</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>8. called on different students to answer questions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. responded to student questions effectively</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. aware of whether or not class comprehends</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. demonstrated enthusiasm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. implemented lesson at an appropriate pace</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. used the full class time effectively &amp; ended on time</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TA's Body Language</th>
<th>+</th>
<th>-</th>
<th>Other</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. faced the class when speaking</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. made appropriate eye contact with students</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. body movements were not distracting</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. displayed a professional appearance (dress)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TA's Speech</th>
<th>+</th>
<th>-</th>
<th>Other</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. spoke loudly enough</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. spoke at a good pace</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. fluent in English</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. clear and understandable pronunciation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. appropriately addressed student questions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. avoided distracting phrases, words, noises (um, OK)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
E6  Round one reflection journal

1. Please note the time, date, and name of the class you intend to reflect on in this journal entry

2. At this point in the semester, what are your primary responsibilities as a TA? Further, in fulfilling these responsibilities, in what ways, if any, have you found yourself relying on the information and/or experiences included in the TA Seminar?

3. The following questions are merely a guide for your reflection. You may address all, some, or none of them as you see fit. You also may discuss aspects of your teaching experience outside of the confines of what these questions ask. Please be as informative as possible about what you are going through as a teaching assistant, including any questions or concerns you may have.
   How have you adapted to your role and responsibilities as TA thus far?
   How do you feel about your performance as a teaching assistant thus far?
   In what ways do you know that your students have understood what you are teaching them?
   How well have you been able to balance your personal, teaching, studies and/or research responsibilities at this point?
E6  Round two reflection journal

1. Please note the time, date, and name of the class you intend to reflect on in this journal entry

2. At this point in the semester, in what ways, if any, have your responsibilities as a TA changed? Further, in fulfilling your responsibilities, in what ways, if any, have you found yourself relying on the information and/or experiences included in the TA Seminar?

3. The following questions are merely a guide for your reflection. As before, you may address all, some, or none of them, as you see fit. You may also discuss aspects of your teaching experience outside of the confines of what these questions ask, including any questions or concerns you may have. Please be as informative as possible about what you are going through as a teaching assistant.

   In what ways have you further adapted to and/or grown into your role and responsibilities as a TA?

   On a day-to-day basis, how well are you doing in presenting subject matter to your students and finding ways to actively engage them in learning?

   How well do your students understand the subject matter you have presented? Further, how do you determine and know this?

   How well do your students understand your expectations and practices when it comes to grading tests and/or assignments (e.g., lab reports)?

   What have you done to help your students improve their understanding of your expectations and practices?

Done
E6  Round three reflection journal

1. Please note the time, date, and name of the class you intend to reflect on in this journal entry.

2. Now that the Fall semester will soon be coming to a close, in what ways, if any, have your responsibilities as a TA shifted or changed? Further, in fulfilling those responsibilities, in what ways, if any, have you found yourself relying on the information and experiences included in the TA Seminar?

3. The following questions are merely a guide for your reflection. You may address all, some, or none of them, as you see fit. You may also discuss aspects of your teaching experience outside of the confines of what these questions ask, including any questions or concerns you may have. Please be as informative as possible about what you are going through as a teaching assistant.

As you have progressed through this semester, what has been most rewarding for you?

In your estimation, how well have you fulfilled your responsibilities as a TA this semester?

To what extent and/or in what ways have you been able to impact the academic growth of your students this semester?

What are the greatest challenges you have faced this semester as a teaching assistant, graduate student, and researcher?

<table>
<thead>
<tr>
<th>Levels</th>
<th>Technical</th>
<th>Dialogic</th>
<th>Transformative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Routine</td>
<td>Instrumental response to specific situations without changing perspective</td>
<td>Inquiry part of a process involving cycles of situated questions and action, consideration for others' perspectives, new insights</td>
<td>Fundamental questions and change</td>
</tr>
<tr>
<td>Self-disengaged from change</td>
<td>Uses assessment and observations to mark success or failure without evaluating specific qualities of student learning for formative purposes.</td>
<td>Focus is on students. Uses assessment and interactions with students to interpret how or in what ways students are learning in order to help them. Especially concerned with struggling students.</td>
<td>Focus is on personal involvement with fundamental pedagogical, ethical, moral, cultural, or historical concerns and how these impact students and others.</td>
</tr>
</tbody>
</table>

### Focus (What is the focus of concerns about practice?)
Focus is on self-centered concerns (how does this affect me?) or on issues that do not involve a personal stake. Primary concerns may include control of students, time and workload, gaining recognition for personal success (including grades), avoiding blame for failure.

### Inquiry (What is the process of inquiry?)
Questions about needed personal change are not asked or implied, often not acknowledging problems or blaming problems on others or limited time and resources. Critical questions and analysis are limited to critique of others. Analysis tends to be definitive and generalized.

### Change (How does inquiry change practice and perspective?)
Analysis of practice without personal response—as if analysis is done for its own sake or as if there is a distance between self and the situation. Personally responds to a situation, but does not use the situation to change perspective. Synthesizes situated inquiry to develop new insights about teaching or learners or about personal teaching strengths and weaknesses leading to improvement of practice. A transformative reframing of perspective leading to fundamental change of practice.

Appendix F

Audit Trail

F1  Pre-Primary Study Audit Trail, p. 512
F2  Primary Study Audit Trail, p. 513
F3  Post-Primary Study Audit Trail, p. 514
## F1 Pre-Primary Study Audit Trail

<table>
<thead>
<tr>
<th>Date</th>
<th>Description of information</th>
<th>Documentation</th>
<th>Reasons</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/16/12-8/9/12</td>
<td>Backgrounds of Fall 2012 TA Seminar attendees in ANGEL course, Teaching Assistant Seminar 201208-GS1</td>
<td>Background Information Surveys</td>
<td>Transferability, dependability</td>
</tr>
<tr>
<td>8/8/12-8/10/12</td>
<td>Reflections on microteaching in ANGEL course, Teaching Assistant Seminar 201208-GS1</td>
<td>Microteaching Reflection Journals</td>
<td>Confirmability, credibility, data collection</td>
</tr>
<tr>
<td>8/22/12</td>
<td>Request for approval of primary study by Florida Tech IRB</td>
<td>IRB approval application</td>
<td>Protection of human subjects</td>
</tr>
<tr>
<td>8/31/12</td>
<td>Approval granted by IRB</td>
<td>IRB approval letter</td>
<td>Legal approval of study procedures</td>
</tr>
<tr>
<td>8/31/12-9/14/12</td>
<td>Responses to solicitation email to participants in ANGEL group, Teaching Assistant Resources</td>
<td>Solicitation and response emails</td>
<td>Obtaining participants for study</td>
</tr>
</tbody>
</table>

*Note.* The IRB approval application was information that was submitted. The solicitation email was information emailed to Fall 2012 Participants. All other forms of information were collected.
<table>
<thead>
<tr>
<th>Date</th>
<th>Description of information obtained</th>
<th>Documentation</th>
<th>Reasons</th>
</tr>
</thead>
<tbody>
<tr>
<td>9/19/12-</td>
<td>Early semester concerns in ANGEL Reflection Study Group</td>
<td>TCQ pre-assessments</td>
<td>Confirmability, credibility, data collection</td>
</tr>
<tr>
<td>10/9/12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9/25/12-</td>
<td>Early observations of teaching behaviors and practices; early interviews</td>
<td>TA Post-Seminar Observation Form; Interview notes</td>
<td>Confirmability, credibility, data collection</td>
</tr>
<tr>
<td>10/8/12</td>
<td>of TAs (in coached groups)</td>
<td>(round one)</td>
<td></td>
</tr>
<tr>
<td>9/29/12-</td>
<td>Early reflections of teaching experience in ANGEL Reflection Study</td>
<td>Reflection journal of first observation (round one)</td>
<td>Confirmability, credibility, data collection</td>
</tr>
<tr>
<td>10/11/12</td>
<td>Group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10/16/12</td>
<td>Peer debriefing from advisor, Dr. Marcinkowski</td>
<td>Meeting in-person</td>
<td>Confirmability, credibility</td>
</tr>
<tr>
<td>10/17/12</td>
<td>Student feedback on course mid-term in print form—scanned and saved</td>
<td>Mid-term student evaluations</td>
<td>Confirmability, credibility, data collection</td>
</tr>
<tr>
<td>10/10/12-</td>
<td>Mid-semester observations of teaching behaviors and practices; early</td>
<td>TA Post-Seminar Observation Form; Interview notes</td>
<td>Confirmability, credibility, data collection</td>
</tr>
<tr>
<td>10/25/12</td>
<td>interviews of TAs (in coached groups)</td>
<td>(round two)</td>
<td></td>
</tr>
<tr>
<td>10/18/12-</td>
<td>Reflections of teaching mid-semester in ANGEL Reflection Study Group</td>
<td>Reflection journal of second observation (round</td>
<td>Confirmability, credibility, data collection</td>
</tr>
<tr>
<td>10/30/12</td>
<td></td>
<td>two)</td>
<td></td>
</tr>
<tr>
<td>10/26/12-</td>
<td>End-of-semester observations of teaching behaviors and practices; early</td>
<td>TA Post-Seminar Observation Form; Interview notes</td>
<td>Confirmability, credibility, data collection</td>
</tr>
<tr>
<td>11/8/12</td>
<td>interviews of TAs (in coached groups)</td>
<td>(round three)</td>
<td></td>
</tr>
<tr>
<td>11/2/12-</td>
<td>Reflections of teaching end of semester in ANGEL Reflection Study Group</td>
<td>Reflection journal of third observation (round</td>
<td>Confirmability, credibility, data collection</td>
</tr>
<tr>
<td>11/25/12</td>
<td></td>
<td>three)</td>
<td></td>
</tr>
<tr>
<td>11/19/12-</td>
<td>Late semester concerns in ANGEL Reflection Study Group</td>
<td>TCQ post-assessments</td>
<td>Confirmability, credibility, data collection</td>
</tr>
<tr>
<td>12/3/12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12/12/12-</td>
<td>Student feedback at the end of the semester in digital or print form</td>
<td>Student end-of-course evaluations</td>
<td>Confirmability, credibility, data collection</td>
</tr>
<tr>
<td>2/11/13</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. My study was originally designed to be mixed methods. However, a decision was made by my committee members to change the study to a qualitative methodology. I was asked to revise my chapters 1-3 and report findings consistent with qualitative methodology in chapters 4 and 5 to reflect this change. Because of this change, there is a clear separation of data collection and data analysis in this audit trail. With regard to the accuracy of this report, the dates recorded above for interviews, observations, reflection journals, and TCQs are for the majority of responses and do not represent collection periods for all participants because there were a few participants (roughly 4 of 13) who either were scheduled late and/or responded late to these data points.
### F3  Post-Primary Study Audit Trail

<table>
<thead>
<tr>
<th>Date</th>
<th>Description of information obtained</th>
<th>Documentation</th>
<th>Reasons</th>
</tr>
</thead>
<tbody>
<tr>
<td>12/12/12-2/11/13</td>
<td>Student feedback at the end of the semester in digital or print form</td>
<td>Student end-of-course evaluations</td>
<td>Confirmability, credibility, data collection</td>
</tr>
<tr>
<td>9/5/13-9/18/13</td>
<td>Academic unit responses regarding access to participants’ student evaluations</td>
<td>Student end-of-course evaluations</td>
<td>Confirmability, credibility, data collection</td>
</tr>
<tr>
<td>1/1/14-6/30/14</td>
<td>Analysis and organization of data</td>
<td>Chapter 4 data reporting</td>
<td>Dissertation</td>
</tr>
<tr>
<td>2/7/14-7/15/14</td>
<td>Peer debriefing from advisor, Dr. Marcinkowski</td>
<td>Meetings, in-person</td>
<td>Confirmability, credibility</td>
</tr>
<tr>
<td>3/27/14</td>
<td>Peer debriefing on case study with colleague, Dr. Katie Nall</td>
<td>Emails</td>
<td>Confirmability, credibility</td>
</tr>
<tr>
<td>5/1/14-6/30/14</td>
<td>Feedback on case studies from participants</td>
<td>Emails</td>
<td>Confirmability (member checks)</td>
</tr>
</tbody>
</table>

Note. Participants were asked to provide their student evaluations, but many could not obtain any for various reasons. To get a third viewpoint for triangulation, a second attempt was made through the academic units to obtain these documents as a follow-up in 2013. Due to the scheduling complications of this study, member checks were not performed until a year and a half after the conclusion of data collection.