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THE BORN VERSUS MADE DEBATE: AN EXAMINATION OF COMMUNITY COLLEGE
INSTRUCTORS' BELIEFS AND TEACHING PRACTICES

by

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A dissertation submitted in partial fulfillment of the requirements
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ABSTRACT

Research on the development of K-12 teachers' beliefs about and approaches to teaching and learning suggests that exposure to professional development programs can lead to the use of conceptual change strategies that engage students as active participants in the learning process rather than on teacher-centered strategies focused on information transfer. However, within the existing literature on the development of teacher beliefs and approaches to teaching and learning there exists a void of information pertaining to the development of community college instructors' beliefs and approaches. The purpose of this study was to investigate the relationship between pre-tenure community college instructors' beliefs about teaching and learning, their approaches to the learning process, and the training they receive via a professional development program specifically established to provide training in teaching methods, pedagogy, curriculum, and/ or instruction.

Forty community college instructors going through an established three-year tenure process completed a revised version of the Approaches to Teaching Inventory (ATI-R) created by Trigwell and Prosser (1998). Data analysis revealed that there was no difference in the scores of instructors who had participated in the professional development program on teaching and learning and those instructors who had no exposure to courses that focused on teaching and learning. Further, findings suggest that instructors' participation in the courses is not related to their beliefs or teaching approaches.

The findings of this study warrant a closer examination of programs designed to provide higher education instructors with training in pedagogy and instruction. Additionally, the findings present an opportunity for professional development programs to improve current practice.

I dedicate this dissertation to my loving husband, Jeff. Without his support, patience, and love my work on this dissertation would not have been possible.

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CHAPTER ONE: INTRODUCTION

Background and Significance

The National Center for Educational Statistics (2010) reported a 32% increase in postsecondary institution enrollment between 1998 and 2008. Additionally, the Education Commission of the States (2010) reported that enrollment trends of traditional college-age students are expected to increase by 2.3 million between 2000 and 2015. In a changing world where economic crises, closing generation gaps, and greater industry demands are motivating more Americans to pursue a postsecondary education, today's college instructors must be prepared to handle an increasingly heterogeneous population of students. Kjellgren et al. (2008) found that teachers in today's postsecondary classrooms must be able to approach instruction in ways that will impact a growing group of students who have non-traditional backgrounds, learning needs, and expectations. As more Americans turn to higher education, they seek institutions that will provide the best education possible by instructors who are well prepared to cultivate learning among their students. However, a growing concern over teacher preparation has caused education leaders and stakeholders to take a closer look at how teachers' beliefs about the teaching and learning processes are affecting their classroom practices (Becker, 2008; Darling-Hammond, 2006). The concern primarily rests with the impact that the beliefs and approaches teachers take toward learning and instruction have on their students (Kemp, 2008; Kjellgren et al., 2008; Zeichner, 2006).

According to Kjellgren et al. (2008), the way in which teachers introduce material to postsecondary students affects the students' quality of learning, the development of their competence, and their adjustment to academia. Additionally, teachers' beliefs about teaching and learning have been found to be crucial contributors to learning, affecting the way in which teachers approach instruction, how students learn and apply knowledge, and how students perceive the learning environment (Kemp, 2008; Struyven, Dochy, & Janssens, 2010; Trigwell, Prosser, & Waterhouse, 1999). These factors determine whether students adopt superficial, surface learning approaches to learning or deeper approaches, yielding higher-quality learning outcomes—the desired outcome of the learning process (Trigwell, Prosser, & Ginns, 2005). Further, Trigwell, Prosser, and Waterhouse (1999) reported that teachers who described their teaching beliefs as information transmission/teacher focused were more likely to be teaching students who reported adopting a surface approach to learning. Students who adopt this surface approach to learning are less likely to gain deep understanding of the subject matter being taught (Kemp, 2008; Struyven et al., 2010; Zeichner, 2006), thus making the topic of teacher beliefs and abilities a critical topic as more students turn to higher education as a means to gain the skills necessary to compete in an unstable and changing country.

Statement of the Problem

Most of the existing literature on teacher education and teachers' approaches to learning and instruction center on the beliefs and development of K-12 teachers. While studies examining postsecondary instruction do exist, the majority of the work focuses on university teachers,

discounting the role of the community college in the postsecondary education realm (Coffey & Gibbs, 2000; Fives & Looney, 2009; Light, Calkins, Luna, & Drane, 2009; Kemp, 2008; Persellin & Goodrick, 2010; Postareff, Lindblom-Ylanne, & Nevgi, 2007; Struyven et al., 2010). Although the role that community colleges play in preparing an increasing student population to enter the labor force is important, community college faculty receive little attention from postsecondary researchers and are often seen as a lesser class of college professors, warranting little research attention (National Center for Postsecondary Improvement [NCPI], 1998). However, in 2009, community colleges enrolled 11.7 million students, accounting for nearly half of all undergraduate students in America, making the study of community college instructors' beliefs and instruction practices imperative (American Association of Community Colleges, 2010).

Identifying the influences that shape postsecondary teachers', especially community college instructors', approaches to teaching and learning are paramount to the academic success of students. According to Trigwell et al. (1999), studies examining deep approaches to learning (students are engaged and find value in what is being learned) and surface approaches to learning (students do not find value or meaning in what is being learned) among postsecondary instructors show that deeper approaches to learning are related to higher quality learning outcomes. Trigwell et al. (1999) reported that students approach learning at a deep level if they experience some independence in choosing what is to be learned, observe clear goals and standards required in the subject to be learned, and perceive the quality of teaching to be high. In response to such

findings, the beliefs teachers hold about their ability to plan, organize, and carry out teaching activities, how those beliefs are formed, and what influence those beliefs have on teachers' approaches to learning has become a central focus of educational researchers (Becker, 2008; Fives & Buehl, 2008; Kemp, 2008; L fstr m, Poom-Valickis, Hannula, & Mathews, 2010; Scott & Dinham, 2008; Skaalvik & Skaalvik, 2010; Watt & Richardson, 2008). According to Scott and Dinham (2008), what teachers believe about a student's ability to learn influences their expectations of student learning, thus affecting the manner and quality with which they teach. Further, teacher beliefs and conceptions have an important impact on teaching practices by directly influencing the teaching and learning process of students (Lee, 2009; Postareff, et al., 2007; Skaalvik & Skaalvik, 2010). For example, if a teacher believes that student-centered teaching facilitates student learning, he will integrate student-centered learning into the classroom (Dunn & Rakes, 2010; Trigwell & Prosser, 2004).

Understanding how teacher beliefs are shaped and to what extent teacher education programs play in the development of those beliefs are concepts that have received much attention in the last few decades (Cheng, Chan, Tang, & Cheng, 2009; Darling-Hammond, 2006; Kane, Sandretto, & Heath, 2002; Ripley, 2010; Rogers, 2009; Skaalvik & Skaalvik, 2010). For example, national and state attention has turned to an examination of teacher education programs, which are being challenged to substantiate the quality of the teaching force they are responsible for developing (Postareff et al., 2008; Skaalvik & Skaalvik, 2010).

While much research exists on teacher education programs developed to prepare K-12 teachers, research on the relationship between teacher education and postsecondary instructional approaches and beliefs is lacking, particularly within the community college (Gibbs & Coffey, 2004; Korthagen, Loughran, & Russell, 2006; Light et al., 2009; NCPI, 1998; Postareff et al., 2008). Further, studies of postsecondary teachers' participation in training have been focused on how this training will support their teaching roles, not on how the training will impact teaching beliefs and behaviors (Coffey & Gibbs, 2000; Postareff et al., 2007). This significant gap leads to a concern over lack of representation surrounding the American community college instructor.

Community colleges offer an important step into the future for the majority of today's postsecondary education students, so it is essential for those students' success that they receive instruction from qualified and capable instructors. Teachers' abilities and beliefs are crucial contributors to student learning; therefore, it is important to recognize how teachers' beliefs about teaching and learning are formed. Additionally, finding connections between teacher beliefs and their pedagogical strategies is important. Specifically, identifying how community college instructors' beliefs and teaching strategies are influenced by their participation in formal pedagogical training will assist postsecondary teacher education programs in establishing a curriculum that provides existing and future instructors with the tools necessary to establish a student-centered learning atmosphere focused on conceptual change strategies which engage students as active participants in the learning process rather than on a teacher-centered atmosphere focused on information transfer.

Theoretical Rationale/Conceptual Framework

Throughout the last few decades, interest in teachers' beliefs about teaching and learning has become an important focus of educational researchers (Fives & Buehl, 2008; Kemp, 2008; Kim & Hannafin, 2008; Speer, 2008; Watt & Richardson, 2008). Fives and Buehl (2008) suggested that an analysis of teachers' beliefs about teaching is an important process to better understanding teacher cognition. However, discussions about the development of teachers' beliefs are varied and often underexplored (Buehl & Fives, 2009).

Behaviorism and social learning theories are among the principles that surround learning. From behaviorism, which focuses on how behaviors are shaped through environmental cues (Driscoll, 2005), to social learning theories, which emphasize the importance of observing and modeling the behaviors, attitudes, and emotions of others (Kearsley, 2010), these learning theories have provided a deeper examination into how individuals learn and the important role that instruction plays in the learning process. Research suggests that teacher beliefs are grounded in the theoretical framework of social cognitive theory (Skaalvik & Skaalvik, 2010).

Because many postsecondary teachers have had little or no training in teacher education, it is important to study and understand how postsecondary teachers learn to teach and how their beliefs about teaching and learning are formed (Postareff et al., 2007). In terms of teacher education, learning theories suggest that providing teachers with the external cues by which they can learn the best practices of teaching—as opposed to the idea that teaching is an inborn, innate skill—is a necessary step in training future teachers. Social learning theories, such as those

presented by Bandura and Gagne, support the notion that an individual's learning and behavior are shaped by interactions within the environment; for instance, through an individual's observations and modeling of behaviors by others (Driscoll, 2005). Gagne's Conditions of Learning theory suggests that specific learning conditions, which include both internal and external events, work to shape learning outcomes (Driscoll, 2005). Additionally, the theory of attribution plays a significant role in how one approaches the learning context and how he explains his behavior—either attributing changes in behavior to internal or external factors.

Learning theorists suggest that social and cultural influences also affect the individual learner in that he internalizes knowledge from the environment so that the sociocultural setting and the activities of the people in that setting play a collective role in the learning process. According to Kane et al. (2002), the development of a teacher's beliefs is shaped by the social role of school and is a result of "apprenticeship of observation" (p. 199). Kane et al. suggested that because some teachers lack formal training in classroom practices, their behavior in the classroom is mostly influenced by their own beliefs and observations. Postareff et al. (2007) proposed that "teachers' approaches to teaching are influenced by their conceptions of teaching" (p. 558). Further, Kim and Hannafin (2008) concluded that teachers' beliefs and knowledge about pedagogical methods are developed as a result of repeated exposure to their own interactions with teachers and the learning environment from which they were taught.

The central issue addressed in the search to better understanding teacher beliefs has been in actually defining the term "beliefs" as it applies to teachers. Defining teacher beliefs is

important because beliefs about teaching and learning guide and shape teachers' thoughts, judgments, and decisions in the classroom (Kane et al., 2002). However, academic researchers use a variety of definitions and terms to define the same concept. Kemp (2008) noted that there is still no clear conceptualization of what is meant by the terms beliefs since "Pajares' (1992) identification of the myriad terms employed by researchers" (p. 251). Based on a review and synthesis of existing literature concerning the definition of beliefs, teacher beliefs, for the purposes of this study, are defined as those teaching and learning principles that are defined and shaped based on experiences in a teacher's own learning. Beliefs have a significant influence on how teachers approach the teaching and learning context. Further discussion on how these beliefs are shaped and formed is provided in the literature review in chapter two.

Purpose of Study

Too many community college instructors enter the classroom with little or no pedagogical training aimed at preparing them to establish student-centered learning environments; therefore, it is important to study possible alternate ways in which community college instructors' beliefs about teaching and learning are shaped, apart from pre-service education programs. The purpose of this study, therefore, is to investigate the relationship between tenure-track community college instructors' beliefs about teaching and learning, their approaches to the learning process, and the training they receive via a professional development program, which was specifically established to provide training in teaching methods, pedagogy, curriculum, and/ or instruction. Additionally, the present study will examine the relationship

between the categorical variables gender, age, ethnicity, level of education, and academic discipline and the differences in community college instructors' approaches to teaching and learning. This is an important study given that there is little existing research in the area of community college instructors' beliefs and how those beliefs are formed.

Significance to Practice

Examining the beliefs of community college instructors who receive formal teacher education training during the tenure-seeking phase of their career will provide a greater understanding of how exposure to courses in teaching methods, pedagogy, curriculum, and/ or instruction influence the beliefs about teaching and teaching strategies.

As an increasing number of students enter the community college, it is imperative to equip the learning environment with teachers who place the needs of students first. Without an examination of beliefs and practices, teachers cannot improve their teaching methods and teacher education programs cannot provide prospective and existing teachers with the appropriate training (Kane et al., 2002). Fives and Buehl (2008) suggested that a better understanding of teacher beliefs and cognition will lead to improvements in ongoing teacher development and preparation in the form of conceptual change, teacher self-regulation, and professional practice. Further, Speer (2008) claimed that there have not yet been detailed enough investigations to provide "insight into why it is so difficult for teachers to modify their beliefs and adopt new practices" (p. 218). This study will provide significant insights concerning the influence of teacher training and its impact on community college instructors' practices and beliefs.

Additionally, this study will help to perpetuate a necessary change in future teacher preparation practices, which seems to be linked to changes in beliefs (Speer, 2008).

Research Questions

RQ1(a). Do instructors' teaching beliefs differ between community college instructors who have received formal pedagogical training during their tenure process and those non-tenured instructors who have not received such training?

RQ1(b). If differences in beliefs do exist, what kinds of differences exist and how do they differ between tenured and non-tenured instructors?

RQ2(a): Do instructors' teaching strategies differ between community college instructors who have received formal pedagogical training during their tenure process and those non-tenured instructors who have not received such training?

RQ2(b). If differences in teaching strategies do exist, what kinds of differences exist and how do they differ between tenured and non-tenured instructors?

RQ3: Do categorical variables such as gender, age, ethnicity, level of education, and academic discipline relate to differences in instructors' approaches to teaching and learning among community college instructors?

Definitions

Approaches to Teaching Inventory-Revised (ATI-R): The ATI-R measures the degree to which teachers approach the teaching and learning context from either a teacher-centered approach or a student-centered approach.

o **Conceptual Change/Student-focused (CCSF):** A student-focused strategy aimed at engaging students as active participants in the learning process and at changing students' conceptions.

o **Information transfer/Teacher-focused (ITTF):** Teacher-focused strategy with the intention of transmitting information to students.

Professional Development Courses: Courses as part of the study's community college Teaching and Learning Academy which provide instructors with training in pedagogy, teaching methods, and curriculum development.

Teacher Education Programs: Collegiate education programs developed to provide education in teaching methods, pedagogy, curriculum, and/ or instruction.

Teacher Beliefs: Those teaching and learning principles that are defined and shaped based on experiences in a teacher's own learning.

Teaching and Learning Academy (TLA): A community of practice that supports professors, counselors, and librarians. TLA provides support in pedagogy, course design, student development, and professional portfolio development.

CHAPTER TWO: LITERATURE REVIEW

“Investments in improving the preparation, support and retention of good teachers are among the most important that we can make for the future of the nation” (The Secretary of the U.S. Department of Education, qtd. in Bales, 2006, p. 396).

Introduction

During the past two decades, teacher education has been subject to close examination as organizations such as the National Board for Professional Teaching Standards (NBPTS) and the Carnegie Task Force on Teaching as a Profession began arguing for “the centrality of expertise to effective practice and the need to build a more knowledgeable and skillful professional teaching force” (Darling-Hammond, 2010, p. 36). Policy initiatives directed at establishing professional standards for teaching education have led to significant changes in teacher education, and recent debates about teacher education have centered on whether and how approaches toward preparing future teachers could make a difference in the quality of education being made available to students (Darling-Hammond, 2010). How a student is introduced to their studies has been found to affect the quality of his learning (Kjellgren et al., 2008); therefore, colleges of education and teacher education programs have witnessed a resurgence of importance and have been tasked with the major responsibility of influencing teachers’ approaches to the teaching and learning context.

Among the concerns of policy makers is the fact that many of today’s teachers are inexperienced, leading to severe problems within the classroom (Korthagen et al., 2006).

Concerns led to reform agendas such as the National Commission on Teaching and America's Future (NCTAF) 1996 call to provide every American student with access to competent, caring, and qualified teachers (Darling-Hammond, 1997). However, despite the calls for change, policies, and reform agendas, one of the most damaging actions of today's educational system is its continued exposure of students to teachers who are not sufficiently prepared to teach. The level of inexperience and degree of severity range and have left many leaders and researchers within academia seeking answers (Darling-Hammond, 2006; Darling-Hammond, Chung, & Frelow, 2002; Light et al., 2009; Korthagen et al., 2006; Okpala, James, & Hopson, 2009; Reig & Wilson, 2009). The growing concerns regarding teacher quality has raised questions among schools and school officials about the quality of existing teacher education programs. As a result, national and state attention has turned to an examination of the form, function, and execution of these programs.

As early as 1750 the need for teacher education programs that yield qualified teachers has been recognized and under discussion. However, according to O.L. Davis, Professor Emeritus at the University of Texas in Austin, the history of American teacher education is "neglected, uninformed, and shallow" (Spearman, 2009, p. 54). Further, Korthagen et al. (2006) noted that the study of teacher education has long been seen as a field of little importance within the academy. Research reports on the development and evolution of teacher education in America account for as little as 10% of the research reported in such publications as *Pedagogica Historica* and the *American Educational History Journal* (Spearman, 2009). Nevertheless, the importance

of powerful teaching has become increasingly important in today's contemporary society and teacher education programs are being held to high standards as they work toward preparing teachers to meet the diverse needs of the evolving classroom.

Teachers' abilities are crucial contributors to student learning and have a significant bearing on student achievement, so it is important for schools to employ teachers who have been trained to plan, organize, and carry out teaching activities aimed at advocating for students, and who are able to create a student-centered learning atmosphere that meets the needs of a varied student population (Coffey, 2010; Darling-Hammond, 2006; Dinham, 2006; Jordan, Schwartz, & McGhie-Richmond, 2009; Kane et al., 2002). The focus of a student-centered learning atmosphere should be encouraging students to be active constructors of their own knowledge as they work toward changing their conceptions of the idea/phenomena they are studying (Struyven et al., 2010). Darling-Hammond (2006) suggested that today's teachers need the skills to construct and manage classroom activities efficiently. However, many feel that today's teachers are not being taught how to execute routine daily tasks and duties within the classroom (Becker, 2008; Darling-Hammond, 2006; Korthagen et al., 2006; Struyven et al., 2010). Research into this particular educational problem suggests that today's teachers are not receiving adequate pedagogical training within their teacher training programs (Zeichner, 2006). The programs, instead, end up producing a core of teachers who are considered "good enough," but who are not sufficiently trained to advocate for the success of their students in all areas of academia. These teachers are not being adequately prepared to handle the realities and complexities of their

classrooms and are not being taught the successful classroom practices that encourage student achievement and independent student learning (Coffey, 2010). Even student-teachers have reported their disappointment in their teacher education programs (Loughran, Mulhall, & Berry, 2008).

What, then, should teacher education programs look like and what is their role in shaping teachers' approaches to teaching and learning? Research in the field of education has turned to identifying areas for improvement within existing teacher preparation programs (Wyman, 2004). Wyman reported that teacher education programs are being challenged to demonstrate their role in creating quality teachers (p. 1).

Of notable importance to this study is that fact that institutions of higher education and the teacher education programs they offer have historically focused course work on preparing educators for roles in primary and secondary schools, leaving little focus on education programs for postsecondary educators (Jordan et al., 2009; Rots, Aelterman, Vlerick, & Vermeulen, 2007; Watt & Richardson, 2008). However, despite the many differences between children and adult learners, the basic psychology of learning should be at the heart of curriculum design within teacher education programs. Additionally, while there is much research and work being done to investigate and test the quality of training programs for pre-service elementary and secondary teachers, the issue of pedagogical training and preparation for postsecondary teachers seems to be lacking within existing research. Furthermore, while there is a growing body of research focused on the preparation of university instructors, little exists which investigates the role of

teacher education and preparation for community college instructors. According to the Bureau of Labor Statistics (2009), there are over 1.5 million postsecondary education instructors in the United States; therefore, it is appropriate and necessary to augment the current research into education training available to primary and secondary instructors to include research focused on the education training available to postsecondary instructors, specifically community college instructors who support the 1173 community college institutions across the United States and who have provided education for over 1 million students since the establishment of the community college in 1901 (American Association of Community Colleges, 2010).

History of Teacher Education

During the latter part of the eighteenth century, dedicated schools and programs whose sole mission was teacher preparation began to flourish (Pemberton, 1974). However, as the needs of society began to affect higher education and more liberal arts colleges were needed, the concept of teacher education was lost into the fold of the American university system (Labaree, 2008).

The first dedicated teacher training schools were established in the United States during the mid-nineteenth century. Prior to their introduction there were no formal programs dedicated to the specific training required to become a teacher. As a matter of fact, almost anyone could be classified as a teacher prior to the establishment of the common school—the first public school system made available to all and which paved the way for the current model of K-12 public schooling—in the 1830s. Teachers simply became teachers who taught the courses they

themselves had mastered and completed (Labaree, 2008). The requirements for entry into teaching were minimal and included possessing the ability to maintain order within a classroom, persuading local school boards of a prospective teacher's moral character, and passing a test of general knowledge (Labaree, 2008; Ravitch, 2003). The establishment of the common school, however, highlighted the need for formalized teacher training programs. Individuals such as Horace Mann and James Carter saw a need to provide students with quality instruction within the new common school and lobbied for the creation of schools dedicated to the training of future teachers. The first state normal school, established in Massachusetts, was established as a single-purpose school dedicated to preparing elementary teachers to enter the public school system (Labaree, 2008). The normal school was a distinct and separate educational platform from existing universities. The sole purpose of the normal schools was to provide their students with teaching skills in educational methods (Pemberton, 1974; Ravitch, 2003). Initial programs lasted one to two years and provided prospective teachers with subject-matter exposure and some pedagogical training. Completion of a program at a normal school certified that the teacher had the training necessary to set the standard of good teaching (Labaree, 2008). However, not everyone was in support of making teacher education a public sanction.

Traditionalists of the late nineteenth century saw these normal schools as infringement to their elitist view that education was not to be made public. With roots grounded in aristocracy, the traditionalist held to Plato's perspective that education was not to be made equally available to all (Null, 2007). According to the traditionalist, education was a scholarly endeavor and only

true professions, such as law and medicine, were deemed worthy of academic attention (Null, 2007). Platonic traditionalist held firmly to Plato's view that there was a distinctive line between academia and professions, hobbies, or trades. Teaching at the primary and secondary levels was considered only a hobby, not a profession, and certainly not something worthy of a public educational platform, or worthy of academic attention; therefore, traditionalist strongly disapproved of the idea of the common school and the normal school (Null, 2007).

However, as the population began to move beyond apprenticeship training in the crafts and trades, professional schools with an academic component expanded. With that expansion came the acknowledgment that students of all ages needed an education, resulting in the increased need for teachers. The idea that teaching was simply a hobby was replaced by the acceptance that it was indeed a profession, though there were still strong debates. Normal schools began to gain acceptance and favor with those who felt that education was a right and privilege (Null, 2007; Pemberton, 1974). The integrationist, who saw a need to bring knowledge of subject matter to all Americans, worked to better integrate the social needs of society into the education system. As the integrationist ideology began to sweep through the normal schools, the schools began to feel the pull between becoming professional education centers aimed at providing teacher candidates with all of the tools necessary to prepare them for the profession of teaching—subject training and pedagogical instruction—and of simply turning teacher training into a program by which teachers were given minimal training with the mission of quickly turning out teachers who were equipped to handle the increasing number of students within the

common schools (Labaree, 2008; Null, 2007). The integrationist movement fought for pedagogy and subject-matter content mastery to be built into the curriculum within the normal schools and “set forth the first fully developed understanding of curriculum for teachers” (Null, 2007, p. 51). Integrationist felt strongly that teachers should not simply know how to teach or what to teach, but should also know why to teach (Null, 2007). They argued that teachers should be given all the tools necessary to teach, therefore, normal schools became clearly grounded in the mission of teacher education. Supporters felt that future teachers should have an opportunity to practice their skills before entering their own classroom, so they also introduced the idea of turning theory into practice into the teacher training programs by including pre-service teaching opportunities.

Normal schools underwent several changes throughout their history and became more stringent in order to fulfill their mission of providing quality teachers; for example, toward the end of the nineteenth century, high school graduation became an admission requirement of the normal schools (Pemberton, 1974). As the population began to expand and more students were moving along the public school curriculum, the need for teachers trained at all levels of education was increasing. Normal schools began to expand in order to provide education for those wanting to teach within elementary schools and those wanting to teach in the higher levels, such as middle and high school. As demands for qualified teachers flourished, the integrationist argued that teaching was the most significant profession of all and required committed teachers who were liberally educated and professionally trained (Null, 2007). Normal schools were

expected to become professional schools in much the same way schools of law and medicine were classified (Pemberton, 1974). As a result, normal schools quickly became known as ‘teachers colleges’ in order to demonstrate the professionalism associated with teacher training.

The industrial expansion at the end of the nineteenth century and the growing need for certified teachers forced the teachers colleges to expand their role even further. As states began to recognize the need to standardize and accredit high schools, they insisted upon common college preparation for high school teachers. Universities also began to feel the pressure to adopt the preparation of high school teachers into their curriculum (Pemberton, 1974). In order to preserve their identity as the leader in teacher education, teachers colleges transformed their two year programs into four-year liberal arts programs in education and began granting degrees instead of certificates of completion (Null, 2007; Pemberton, 1974). Bachelor of Elements, Bachelor of Elementary Didactics, and Licentiate of Instruction were among the first four-year degrees awarded by the teachers colleges (Pemberton, 1974). Further, as the need for a future population of high school teachers was growing, the idea of scholarship among graduates was deemed a necessary part of course completion; therefore, teachers colleges expanded to include liberal arts curriculum which emphasized distinctions between subject matter content, such as math, history, and English, and courses in pedagogy (Labaree, 2008; Pemberton, 1974). With all the changes, teachers colleges were on their way to producing teachers who were well versed in subject matter and who possessed the skills necessary to teach at the primary and secondary

level. However, the idea of a teachers college whose sole mission was to provide teacher training eventually died out as the needs of the community expanded (Ravitch, 2003).

Along with the growing population of individuals wanting to become teachers, an increasing number of individuals wanted to pursue a postsecondary education at the turn of the century. However, universities and private colleges were often too far from home and too expensive for locals to afford. The teachers colleges recognized the demand for a local, affordable, and accessible form of higher education and began to expand their curriculum of liberal arts courses to move beyond their teacher training curriculum (Labaree, 2008). At the beginning of the twentieth century, teachers colleges began to transform into liberal arts colleges accredited and equipped to confer bachelor's degrees outside of teacher training. With the adoption of additional liberal arts courses and degrees, the schools recognized that their mission was no longer solely focused on teacher preparation, so the former normal schools dropped the name "teachers" from their title and became known as state colleges (Labaraee, 2008). As the colleges became de facto liberal arts schools, with a more diversified student body, they recognized the shift in their mission and the need to compete with the universities. The schools once created to provide teacher training began to slowly transform into universities; moving teacher training into the multiple missions of the school, and offering a wider variety of degrees.

In addition, programs in colleges of education, at large, established universities, began to adopt teacher training programs away from the smaller schools. Larger universities, such as the University of Iowa and the University of Michigan, began to add chairs in pedagogy and

education that eventually evolved into departments of education and finally schools and colleges of education (Labaree, 2008). The mission of the newly defined colleges of education was to prepare high school teachers and school administrators and to add the element of education research supported by the university (Labaree, 2008). Teacher education became a duty of established universities and the new, smaller state universities, alike. As the established universities put teacher education under the leadership of schools and colleges of education, the former normal schools began to mirror their lead. Eventually, as the heightened need for trained teachers was met, teacher preparation became marginal within the growing college and university context, and eventually teacher training became one function among many at universities. The former normal schools and the teacher education programs they once fostered faded into the fold of the state university system. As the responsibility for providing teachers with the academic subject matter they needed was diffused across the university, the professional development side—teaching lesson plans and classroom management—was seen as simple vocational training and was left to the education schools; therefore, the university, who placed the value of academics over vocational needs, put schools of education and the teacher training programs they provided on the lowest level at the university as they worked to become more research oriented (Labaree, 2008, p. 298).

Changing Tides in Teacher Education Standards

The shift in focus of universities over the years caused teacher education to become a topic of little focus, resulting in colleges of education that lacked standards for providing quality

instruction to future teachers. Additionally, teacher education programs were found to be “thin and fragmented,” resulting in a cohort of beginning teachers who were ill-prepared to teach (Darling-Hammond, 1997). The 1980s introduced a resurgence of interest in teacher education as the quality of students’ education and their exposure to underprepared teachers was being challenged. In 1996, for example, the National Commission on Teaching and America’s Future (NCTAF) reported that there was no system in place to ensure that teachers were getting access to the knowledge that would help students succeed (Darling-Hammond, 1997). According to its findings, the NCTAF reported that more than a quarter of new teachers lacked the qualifications for teaching and nearly 25% of secondary teachers did not even hold a minor in their major subject area (Darling-Hammond, 1997). Of greater interest was the claim that some teachers had received no teacher education at all (Darling-Hammond et al., 2002). With concerns over the decreasing quality of teachers entering the classroom, agencies such as NCTAF put in place ten criteria to serve as benchmarks for teacher preparation. According to their 2003 *No Dream Denied, A Pledge to America’s Children* summary report, the following standards were established to serve as the criteria for what the NCTAF, the Interstate New Teacher Assessment and Support Consortium (INTASC), and the National Board for Professional Teaching Standards (NBPTS) proposed as the definition of a “highly qualified teacher” prepared to support student learning:

- Possess a deep understanding of the subjects they teach;
- Evidence a firm understanding of how students learn;

- Demonstrate the teaching skills necessary to help all students achieve high standards;
- Create a positive learning environment;
- Use a variety of assessment strategies to diagnose and respond to individual learning needs;
- Demonstrate and integrate modern technology into the school curriculum to support student learning (i.e. Internet);
- Collaborate with colleagues, parents and community members, and other educators to improve student learning;
- Reflect on their practice to improve future teaching and student achievement;
- Pursue professional growth in both content and pedagogy; and
- Instill a passion for learning in their students.

Despite the efforts of commissions such as the NCTAF, INTASC, NBPTS, and the Carnegie Task Force on Teaching as a Profession, that nation is still far from providing its students with quality teaching (Hunt & Carroll, 2003). Today there are a significant number of concerns regarding teacher education programs, including how well pre-service teachers are being prepared and supported. For example, Darling-Hammond (2006) stated, “a growing number [of teachers] enter teaching before they have been prepared to teach and are increasingly ill-prepared for what they must accomplish” (p. 302). Further, Darling-Hammond pointed out that teacher education has not focused on providing novice and pre-service teachers with a deep

understanding of learning and learning differences. Existing research on teacher education suggests that there needs to be a change in how and what prospective teachers are taught (Bales, 2006; Hunt & Carroll, 2003; Darling-Hammond, 2006; Darling-Hammond, 2010; Pini & Gorostiaga, 2008).

Psychology of Education

Psychologists, philosophers, and researchers have been focused on defining and understanding learning for centuries. Early philosophers, such as Aristotle, and learning theorists, like Jean Piaget, shared two common objectives. The first objective was to investigate and better understand how knowledge is acquired and shaped. The second objective was to establish learning theories by which learning is explained and defined. Understanding the basic premise of learning is an important element in the field of education and beyond. Without a thorough understanding of how individuals acquire and retain information, learning would occur in a vacuum with no formal explanation or process formulated for how individuals learn and develop, making instruction virtually impossible.

Learning theories are among the laws and principles that surround the study of learning. From behaviorism, which focuses on how behaviors are shaped through environmental cues (Driscoll, 2005), to social learning theories, which emphasize the importance of observing and modeling the behaviors, attitudes, and emotions of others (Kearsley, 2010), these learning theories have provided a deeper examination into how individual's learn and the important role that instruction plays in the learning process.

Behaviorist theories presented by theorist such as Watson, Skinner, and Thorndike claim that a stimulus-response environment and individualized student intervention are an imperative part of the learning process. Following these beliefs, behaviorist-centered instructors design their classrooms in such a way that all students receive some sort of individualized reinforcement (positive or negative) for their progress toward learning outcomes. Behaviorists believe that the environment, not the mind, and the clues that surround it are the essential motivation for individual learning.

Social learning theories, such as those presented by Bandura and Gagne, also support the notion that an individual's learning and behavior are shaped by interactions within the environment; for instance, through observations of others and modeling of behaviors by those others (Driscoll, 2005). Bandura's social cognitive theory spans both behavioral and cognitive frameworks by explaining behavior in terms of an individual's interactions with behavioral, environmental, and cognitive influences (Kearsley, 2010). Gagne's conditions of learning theory suggests that specific learning conditions, which include both internal and external events, work to shape learning outcomes (Driscoll, 2005).

Finally, constructivist theory suggests that placing students at the center of the learning environment by requiring them to become an active participant in the learning process is a preferred approach to teaching and learning (Norton, Richardson, Hartley, Newstead, & Mayes, 2005). Approaching teaching with this student-centered technique challenges students to learn

via their own discovery, in groups or individually, though the use of authentic assignments *supported* by the teacher, rather than directed by the teacher (Struyven et al., 2010).

These theories are necessary to formulate a deeper understanding of how to approach the mission of teaching. Additionally, these theories have provided opportunities for educators to better understand the methods by which students are taught. Each of the original theories has given way to expanded theories and ways of approaching the task of teaching. Taken together, these theories have been used to establish the foundational framework required for instruction. Among the important roles that learning theories have in the academic field is their use in defining teachers' beliefs about teaching and learning. These beliefs are also crucial to consider when shaping the instructional practices that comprise teacher training and education. For example, approaching teaching from a constructivist perspective emphasizes student-activating teaching methods, which have been found to be essential to student development (Struyven et al, 2010). This concept is important both in terms of identifying how to approach the teaching and training of teachers and to better understanding how that training will influence student learning outcomes.

Born vs made: A Debate of Teacher Preparation Standards

As a growing body of evidence shows, teacher education programs lend themselves to preparing teachers who feel better prepared to teach, are rated more effective by their superiors, and who contribute to student learning (Darling-Hammond, 2010). Further, studies have shown that well trained teachers have more powerful effects on student achievement than a student's

socioeconomic status (Darling-Hammond, 2010). For example, in response to their claims that the effectiveness of higher education teacher training on improving university teachers' practices needed to be studied, Postareff et al. (2007) examined the impact of 201 university teachers' pedagogical training experiences on their approaches to teaching and their beliefs. Their mixed-methods study looked at the extent to which teachers of higher education would shift from an information-transfer (ITTF) approach toward a more conceptual-change (CCSF) approach, measured by the Approaches to Teaching Inventory (ATI), as a result of their participation in a pedagogical training course. The university where participants worked houses its own in-house teacher training courses in learning and instruction, ranging from four months to one year. The courses were developed to deepen teachers' understanding of the theoretical principles of higher education and to give "teachers the basic skills to plan, instruct and assess teaching and learning" and to "become aware of and capable of using student-centered ways of teaching" (p. 562). Both short and long courses offer teachers an opportunity to apply the new teaching methods introduced to their own teaching and to investigate and develop their teaching practices. All courses are voluntary and no participant was forced to attend any of the courses. Results indicated that the longer the teachers were in the training program, the more likely they were to report a CCSF approach. Additionally, an analysis of results on the ATI scale that measures beliefs also revealed that the more pedagogical training a teacher had, the higher he scored on the beliefs scale.

While a shift toward the CCSF approach did occur, Postareff et al. (2007) reported that changes in teaching approaches and beliefs occur slowly and require at least a year-long training process until a positive change occurs. Additionally, the ITTF approach to teaching is more difficult to change than the CCSF approach. They also reported that a teacher's awareness of the approach he uses to teach is essential to improving teaching practices. A study of existing literature by Postareff et al. revealed that a teacher who adopts a more student-centered teaching approach is more likely to have students who adopt a deeper approach to learning, thus focusing on deeper understandings of the subject they are studying. Their study is important to the field of teaching, especially higher education, because it supports earlier claims that have demonstrated that teachers' beliefs about teaching and learning influence their teaching approaches, which in turn affects student learning outcomes.

With renewed interest in teacher training, the greatest debate concerning teacher education programs today is over what the curriculum of the program should include. Becker (2008) noted that historical debates surrounding teacher training programs have been on content knowledge mastery versus pedagogy training. For example, Zeichner (2006) discussed a series of criticisms launched during the changes to educational programs within the university. He reported that as control over what should be included in teacher education programs began to shift, greater emphasis was placed on content knowledge, rather than methods and foundations courses. As the university sought to remain research focused, there were fewer resources available to train teachers how to be teachers, so the university called for reduced time on

professional, pedagogical development and more on mastering academic content. Weiner (2007) suggested that the notion of only providing teacher candidates with the training necessary to master content knowledge has raised concern among educational leaders and researchers because essentially this belief implies that pedagogy and education in pedagogy are not important to teacher education programs.

Proponents of the “teaching is a born trait” perspective believe that teacher education programs should focus on providing future teachers with the skills to master their area of academic concentration; for example, English or math, with little focus on pedagogical methods and foundations courses. They argue that teaching does not require specialized training, that teaching skills can be learned on the job, and that teacher preparation is not an indicator of teacher effectiveness (Darling-Hammond, 2010). For example, according to Rieg and Wilson (2009), most postsecondary teachers are hired with little to no knowledge about pedagogy, no exposure to pedagogical training, and with no previous teaching experience. Social learning theorists suggest that often, new postsecondary teachers are expected to know how to teach based on the premise that they used to be students and that teaching is a product of imitation (Rieg & Wilson, 2009). Many educators have historically supported the “teach as you preach” principle which posits that instructors within teacher training programs should instruct their student teachers in the fashion by which they feel those students should eventually teach (Struyven et al., 2010). This modeling approach has been adopted as a means to forego actual pedagogical training so that emphasis can be paid to content. Further, Rieg and Wilson reported

that it has been widely accepted that if an instructor is fluent in his subject matter than he will be able to teach without formal pedagogical training and that the instructor will master the ability to teach as he forges his way through lesson plans. Further, many argue that teachers should solely be educated in subject matter mastery and cannot be trained to be teachers; teachers either possess the skill to teach or they don't (Becker, 2008; Spearman, 2009). Persellin and Goodrick (2010) noted the argument made by McGee and Caplow that "any Ph.D. can teach" based on the fact that he has mastered his area of subject-matter. Further, Darling-Hammond (2006) suggested that many policymakers believe that anyone can teach "reasonably well" as long as he knows something about the subject he is going to teach, while the rest of the "tricks of the trade" can be picked up on the job, thus influencing the design of many weak teacher education programs that underprepare teachers (p. 301).

An increasing number of critics have argued for this subject-matter over pedagogy approach, claiming that less emphasis should be paid to pedagogical training for future teachers. According to Darling-Hammond (2010), some critics have argued that teacher education should be made optional as a means for eliminating the bureaucratic hurdles to teaching. However, professionally trained educators dispute this notion (Persellin & Goodrick, 2010).

Teachers must be highly skilled, from being able to diagnose learning problems to developing assessments that show student learning," said Representative Chaka Fattah (D-PA). "Teachers must be prepared with a base of professional knowledge, including strategies and understanding of how to teach all students. Teachers must have both

knowledge of content and knowledge of teaching and learning to be prepared for today's diverse student population. (cited in Wright & Lederer, 2005, p. 2).

Supporters of the “learn as you go” approach fail to understand the complexity of the teacher’s role and responsibilities. Darling-Hammond (2006) described teaching as an art by which teachers need to possess the skills necessary to “purposefully move a group of students from one set of understandings and skills to quite another” (p. 301). She further suggested that those who believe teaching is a born trait or innate skill do not understand the intricate workings of being a qualified teacher, despite their best efforts to mimic the teaching behaviors of their own former teachers. According to Persellin & Goodrick (2010), Lee Shulman, former president of the Carnegie Foundation for the Advancement of Teaching, argued that “subject matter knowledge is only one of seven types of knowledge that expert teachers use” (p. 1). Qualified teachers need to possess the knowledge and judgment skills which enable them to make good decisions as they consider student learning needs and approaches (Darling-Hammond, 2006). Foundational knowledge of learning and performance, language and cultural influences, as well as the psychology of individual temperaments and learning needs are part of the skillset teachers possess in order to support a student-centered learning atmosphere (Darling-Hammond, 2006). Further, research and constructivist theory suggests that subject matter mastery is not sufficient training to be a qualified teacher and the ability to connect subject-matter with teaching strategies and the ability to manage classrooms and present material in a student-centered manner are not skills that most teachers are born with (Persellin & Goodrick, 2010; Struyven et al., 2010).

As noted, on the other end of the “teaching is born” debate are those who feel that mastery of course content *and* pedagogical training are equally essential to the success of future educators (Becker, 2008; Coffey, 2010; Darling-Hammond, 2006; Persellin & Goodrick, 2010; Postareff et al., 2007; Scott & Dinham, 2008). Studies have shown that due to the lack of pedagogical training and preparation that many teacher candidates receive prior to entering the classroom, some do not make it through their first year on the job or express dissatisfaction with their first-year teaching experiences (Kyriacou & Kunc, 2006). Korthagen et al. (2006) pointed out that many of the concerns raised are over the irrelevance of teacher education program content in preparing future teachers to deal with the reality of everyday practices in the classroom. Postareff et al. (2007) mentioned that recent examinations into teacher education programs have highlighted the need to improve pedagogical training and skills among pre-service teacher candidates. Löffström et al. (2010) pointed out that if teachers enter the classroom as masters of their subject matter but lack the requisite skills in pedagogy, the classroom becomes an information transfer session in which the learning needs and identities of the student are replaced by a teacher-centered classroom. Programs in teacher education should be designed to provide prospective teachers with a deep understanding of learning, social and cultural contexts, and teaching approaches (Darling-Hammond, 2006). Further, because cognitive science affirms that people learn more effectively when ideas are reinforced, an emphasis on providing opportunities for teachers to transfer theory into practice via student-teaching opportunities has been identified as an essential component of effective teacher education programs (Darling-

Hammond, 2006; Korthagen et al., 2006). Trigwell et al. (2005) suggested that providing instructors with an opportunity to “reflect on their teaching approaches while weighing them against alternate approaches” will aid in the transformation from creating a teacher-centered atmosphere to a student-centered atmosphere (p. 350). Therefore, providing pre-service teachers with opportunities to practice will prepare them to be learner-centered instructors who diagnose and adapt to individual students learning needs (Darling-Hammond, 2010).

Reform Efforts

Without an agreed upon set of standards about what and how teachers should learn, teaching as a profession will not move forward (Darling-Hammond, 2010). As the nation has struggled to develop teacher education programs that yield highly qualified teachers, organizations such as the National Academy of Education (NAEd) have put forth recommendations to make improvements to ensure that all students have access to teachers who possess expertise in the subjects they are teaching and who are masters at content delivery (Wright & Lederer, 2005).

The NAEd suggested the following core concepts as necessary components to teacher education:

- knowledge of learners and how they learn and develop within social contexts, including knowledge of language development;

- understanding of curriculum content and goals, including the subject matter and skills to be taught in light of disciplinary demands, student needs, and the social purposes of education; and
- understanding of and skills for teaching, including content pedagogical knowledge and knowledge for teaching diverse learners, as these are informed by an understanding of assessment and of how to construct and manage a productive classroom. (Darling-Hammond, 2006, p. 303)

Like the NAEd, NBPTS is focused on promoting and advancing the quality of teaching and learning, and reforming education training for teachers has become part of its mission (Okpala, et al., 2009). Through the introduction of the Five Core Proposition statement, NBPTS has called for 1) teachers to be committed to students and their learning, 2) teachers to know the subjects they teach and how to teach those subjects, 3) teachers to be responsible for managing and monitoring student learning, 4) teachers to think systematically about their practice and learn from experience, and 5) teachers to be members of the learning community (Okpala et al., 2009, p. 30). Today, nearly every state is affected by NBPTS's commitment to excellence in teacher education (Okpala et al., 2009). Among the steps toward establishing a strong foundation within teacher training programs and in order to stress the importance of those standards set by NAEd, the National Council for Accreditation of Teacher Education (NCATE) was established to determine whether or not colleges of education meet the national standards for preparing educators for the classroom. Accreditation, according the NCTAF, is the primary vehicle for

quality control of teacher preparation (p. 21). Research suggests that teachers who participate in accredited programs have been found to be “better” teachers than those who did not participate in such accredited training (Gibbs & Coffey, 2004). Holm and Horn (2003) pointed out that the NCATE requires teacher education programs to demonstrate how they are incorporating subject matter, teaching strategies, learning styles, and student diversity skills training into their curriculum (p. 376). However, professional accreditation of teacher education programs is not required. It is a voluntary effort and disputes over the centrality of teacher education has slowed progress toward “universal high-quality teacher education” (Darling-Hammond, 2010, p. 38).

By providing teacher candidates with adequate methods and foundations training, future teachers will gain the knowledge, skills, and understanding necessary to better value their students’ learning needs, as well as acquire the instructional strategies essential to creating a strong student-centered learning environment (Holm & Horn, 2003). Advocates for a dual-focused teacher education program would argue, then, that adequate pedagogical training and mastery of content knowledge is necessary to create a core of teachers who are able to handle the demands and realities of teaching.

What About Postsecondary Teachers?

Despite the many reform efforts and policies put in place to strengthen K-12 teacher education programs, the lack of dedicated programs for pre-service postsecondary education teachers is alarming. However, the research findings that support quality teacher education have driven researchers to explore the needs of postsecondary instructors as well as K-12 teachers

(Gibbs & Coffey, 2004; Kemp, 2008; Kjellgren et al., 2008; Light et al., 2009; Postareff et al., 2007; Struyven et al., 2010). In response to the limited scope of teacher education programs which focus on K-12 teacher preparation, the lack of training for its teachers, challenges of escalating enrollments, the increasingly diverse student population, and high attrition rates among faculty, community colleges have acknowledged the need for well-trained instructors who understand the unique needs of the community college student. As a result, higher education institutes such as the University of Illinois, University of North Carolina, California State University, and the University of Central Florida have developed graduate certificate programs in community college teaching and instruction. These programs have been developed to increase the effectiveness of existing and future community college instructors, to build the instructional leadership of supervisory personnel at the community college level, to provide pedagogical skills, and to facilitate adult learning (UIUC, 2010; UNC, 2010; CSU, 2010; UCF, 2010). The certificate programs provide fundamental skills in instructional theories, skills, and practice, as well as classroom design, instruction, evaluation and assessment skills. However, while some graduate students seek pre-service teaching experiences such as Teaching Assistant (TA) or Graduate Assistant (GA) roles, many of those students who have full-time jobs will simply attend the required courses and enter the teaching field with no actual classroom experience. Recognizing this fact, community colleges across the nation have also adopted their own in-house training programs, which provide instructors with professional development courses in pedagogy, teaching methods, and curriculum development. The need for teacher education

training for postsecondary teachers is important because a teacher's beliefs influence his approaches to teaching, and "of its [teacher education] reasonable effect on the improvement of learning processes and outcomes" (Postareff et al., 2007, p. 558).

Teacher Beliefs

An analysis of teachers' beliefs about teaching is an important endeavor toward gaining a better understanding of teacher cognition. The analysis will lead to improvements in ongoing teacher development and preparation in the form of conceptual change, self-regulation, and professional practice (Fives & Buehl, 2008). Originally conceived by Bandura, self-efficacy beliefs are those beliefs that one holds about his ability to perform the actions required to achieve a specific outcome and are found to be the best indicators of the choices one makes (Fives & Looney, 2009). Teacher-efficacy, as defined by Fives and Looney, is "the teacher's belief in his or her capability to organize and execute courses of action required to successfully accomplish a specific teaching task in a particular context" (p. 182). Teacher-efficacy, then, will influence the future goals and amount of effort and persistence a teacher will put forth in the teaching context. Understanding teachers' beliefs and how they impact classroom practices and behavior should be of primary interest to any teacher or college of education that wishes to create student-centered learning environments. Raths (2001), however, suggested that the sources of teachers' beliefs are not entirely clear. Additionally, Speer (2008) claimed that there have not been detailed enough investigations to provide "insight into why it is so difficult for teachers to modify their beliefs and adopt new practices" (p. 218). She claimed that a thorough understanding of the relationship

between beliefs and practices will help to perpetuate a necessary change in teaching practices, which seem to be linked to changes in beliefs (p. 224). Speer also pointed out that while it seems clear that beliefs play a role in shaping the practices of teachers, further study into how and why beliefs and practices are connected needs to be conducted.

The study of teacher beliefs is imperative to better understanding the daily instructional practices of teachers and how those practices are formed. By examining the beliefs that shape teachers' practices, teachers and colleges of education can use the results to change educational environments in an effort to meet the needs of the students, rather than the beliefs or needs of the teacher.

Defining Teacher Beliefs

The central issue addressed in the search for understanding teacher beliefs is actually defining the term "beliefs" as it applies to teachers. Defining teacher beliefs is important because these beliefs guide and shape teachers' thoughts, judgments, and decisions (Kane et al., 2002). However, defining the term "beliefs" has been difficult. Researchers define "beliefs" myriad of ways with emerging subcategories and levels of belief systems. For example, Kane et al. (2002) provide several definitions of beliefs, ranging from "a representation of information someone holds about an object" to "any simple proposition, conscious or unconscious, inferred from what a person says or does" (p. 179). Next, Fives and Buehl (2008) use the term to refer to an "individual's judgment of the truth or falsity of a proposition" (p.135). Speer (2008) points out that researchers often use definitions and categories to define beliefs about teaching and learning

based on their own interests of study (p. 222). Finally, Norton et al. (2005) discussed the ambiguity of terms such as “intentions” and “beliefs.” According to their work, the category of “intentions” as measured by research instruments like the Approaches to Teaching Inventory is actually referring to teachers’ beliefs about teaching strategies and behaviors.

Essentially researchers are using a variety of definitions and terms to define the same concept. Based on these confounded issues, and for the purposes of this review, teacher beliefs are defined, as previously introduced in chapter one, as those teaching and learning principles held by teachers that are based on experiences in a teacher’s own learning. It is important to note that teacher beliefs also vary in strength, and depending on the strength, are resistant to change. Further, teacher beliefs filter out new knowledge that is compatible, or not, with current beliefs and are often difficult to articulate. Speer (2008) also indicates that beliefs have a significant influence on how teachers use knowledge.

A final distinction needs to be made before continuing. Kane et al. (2002) proposed that teachers’ self-reflection is an essential part of preparing for the classroom. However, when asked about their beliefs, many teachers report their espoused theories of action and practices, or what they say they wish to achieve, rather than their enacted theories-in-action, or what they actually do because the latter are often held implicitly. Kane et al. differentiated between “espoused theories of action” and “theories-in-use” by first pointing out that “theories of action” are “based on a view of humans as agents acting purposefully on their environment” and that “humans learn from their actions and use this learning to plan further actions” (p. 182). It is from these actions

that humans develop the concepts, schemas, and strategies that influence their behaviors. Thus, theories-in-use are what an individual actually does in a given situation. The distinction between what a person does (theories-in-use) and what they intend to do (espoused theories of action) is important to understanding how teachers respond to classroom situations.

The review of research in the remaining discussion will focus on teacher education training and its influence on postsecondary teachers' development. Research on community college teachers is lacking within current literature; therefore, it is inferred that existing studies in higher education which emphasize university teachers' development is pertinent to the study of community college teachers.

How Teacher Beliefs are Formed

Kane et al. (2002) suggested that teacher preparation is a result of “apprenticeship of observation” and that teachers’ beliefs about what constitutes a good teacher are a result of this observation (p. 199). Further, Kim and Hannafin (2008) suggested that teachers’ beliefs and knowledge about “pedagogical methods, students, content, and curriculum for classroom situations” are developed as a result of repeated exposure to “classroom teaching experiences and interactions with teachers” (p. 1837). Often these beliefs remain latent during formal training programs and may be untouched or unchanged because there is little concentration in teacher training programs on challenging teachers to question their existing beliefs. In addition, there are few programs that train postsecondary teachers how to become successful college teachers. Instead, college instructors spend the majority of their schooling learning discipline specific

content rather than instruction techniques. In short, often teacher beliefs are not addressed in formal schooling and are therefore unchanged. Further, noted by Kane et al., many university teachers lack formal preparation for their role in the classroom.

Kim and Hannafin (2008) presented a framework theory of situated knowledge to account for the development of teacher beliefs and application of practices. Situated knowledge represents not only an individual's beliefs, but also a "repertoire of important incidents paired with personal meanings, beliefs, and know-how" (p. 1838). The work of Kim and Hannafin identified differences between conceptual case knowledge, strategic case knowledge, and the socially shared identities and beliefs held by teachers. The purpose of their study was to identify how "prospective teachers come to understand, adapt, and develop the analytical skills of experienced teachers" by examining how teachers "interpret and react to real-life teaching-learning dilemmas" (p. 1843); essentially, they studied how prospective teachers' practices were affected by their developing beliefs about teaching.

First, Kim and Hannafin (2008) suggested that novice teachers, who have not yet built a sufficient "case library" from which to draw applicable teaching resources, lack the requisite conceptual case knowledge (knowledge built based upon repeated exposure to and interactions with certain situations) required to formulate beliefs about how to implement their own, personalized instructional practices. Next, strategic case knowledge is identified as the knowledge that expert teachers possess that allows them to make use of concepts, facts, and procedures to carry out their instructional practices (p. 1839). Kim and Hannafin claimed that

experience and the creation of routines help teachers build a set of beliefs and knowledge that will influence their instructional practices. Finally, socially shared identities and beliefs about the purpose of teaching are concepts that promote growth of novice teachers. They suggested that teachers' basic beliefs about the field of instruction are built upon a strong foundation in all three categories of situated knowledge. Through their examination of a group of prospective teachers, they found that exposure to real instructional opportunities provided the participants with the information necessary to develop the situated knowledge imperative to the creation of their individualized beliefs about teaching.

Next, Kane et al. (2002) suggested that university teachers' beliefs are greatly influenced and subsequently shaped by a close examination of their own espoused theories, which, according to Argyris and Schon, are cornerstones to the development of theory/belief, building (cited in Kane et al.). It is also important to note that in order for theory building to take place, teachers must experience a conflict or dilemma that arises as a result of the self-examination of espoused theories of action and theories-in-use. Beliefs about one's teaching are, therefore, greatly influenced by an examination of what one thinks he is doing versus his actual instructional practices. Fives and Buehl (2008), however, pointed out that very few studies have been conducted which actually investigate "teachers' beliefs about teaching knowledge (i.e. their epistemic beliefs about teaching knowledge) or their implicit beliefs about the ability to teach" (p. 136). Their investigation revealed that for some teachers, teaching is an integration of personal attributes, such as care, humor, and patience, as well as professional preparation (p.

138). Speer (2008) also pointed out that in addition to such personal and professional influences, teacher knowledge, the curriculum in use, teachers' goals, and various social and contextual factors also determine a teacher's beliefs (p. 221). According to Speer (2008), "researchers have found beliefs to be a significant influence on teachers' use of these cognitive (and other) resources" (p. 221). Finally, Fives and Buehl (2008) claimed that a person's sense of efficacy, along with a multi-dimensional task value orientation, influences teachers' behaviors and outcomes in the classroom. Therefore, to better understand teachers' practices, it is essential to understand how teachers' feelings about their own beliefs (about what is important and plausible to apply in their classroom) affects their instructional practices (Speer, 2008). This understanding needs to be two-fold. First, without it teachers are not able to appropriately address their own actions in the classroom. Teachers must be able to identify their beliefs and make appropriate judgments about how those beliefs influence their actions in the classroom. Teachers need to embrace and modify their beliefs in an effort to change from producing an information-transfer or teacher-centered learning environment to a student-centered learning environment. Second, institutions cannot make necessary changes to teacher training programs unless they understand the underlying beliefs that are shaping and influencing teachers' practices.

Studies focused on primary and secondary education, as well as those studies concentrated on postsecondary education, have identified links between teaching ability, teaching conceptions/beliefs and students' learning approaches and outcomes (Coffey, 2010; Darling-Hammond, 2006; Jordan et al., 2009; Light et al., 2009; Postareff et al., 2007). The

beliefs teachers hold about the teaching and learning process, which ultimately influence teaching practices, are among the most widely studied theoretical constructs considered by researchers as they examine the process of instruction and learning. Investigating the beliefs and motivations behind postsecondary educators is becoming increasingly important as the current population of postsecondary students expands. However, the little postsecondary research and literature that does exist focuses on improving university level teaching, rather than on examining teacher beliefs. Additionally, Fives and Looney (2009) note that the majority of existing research on teachers' beliefs and approaches to teaching and learning has focused on K-12 educators.

The role of a college teacher is distinct and unique from teachers working in elementary and secondary institutions. However, what can be gleaned from previous studies of K-12 teachers' beliefs is that, like K-12 teachers, college teachers who approach learning from a more efficacious point of view will strive to create deep approaches to learning for their students (Fives & Looney, 2009). Fives and Looney stated that there are connections between a teacher's beliefs, particularly teacher-efficacy, his teaching strategies, and the overall achievement of his students. Further, they claimed that the role of the teacher within the postsecondary setting is to help students develop meaningful understanding about the learning domain. Light et al. (2009) provided evidence in their study that learner-centered conceptions of teaching are required in order to move toward quality teaching and for quality learning to occur.

Measuring Teachers' Beliefs

Several studies examining university teachers' approaches to teaching have used the Approaches to Teaching Inventory (ATI). For example, Gibbs and Coffey (2004) used the ATI to examine the effects of teaching development programs on teaching approaches. Postareff et al. (2007) used the inventory to measure the impact of pedagogical training on approaches to teaching and self-efficacy beliefs of university teachers. Light et al. (2009) used an adapted version of the inventory to investigate the relationship between faculty development training and university teachers' approaches to teaching. Kjellgren et al. (2008) used the inventory to examine the relationship of teacher training and its impact on university teachers' approaches to tutoring and student learning. Struyven et al. (2010) investigated the effects of teaching and learning environments on student teachers' approaches to teaching using the ATI-R. Kemp (2008) investigated conceptions of teaching using the ATI in a cultural context (at a polytechnic in Singapore) different from the one in which it was originally developed. Finally, Norton, et al. (2005) used it to investigate teachers' beliefs about teaching in higher education. Their study focused on investigating whether teachers' beliefs and intentions were influenced by contextual variables such as their institution, academic discipline, and their exposure to formal teacher training in higher education or the personal characteristics of the teachers themselves such as gender and amount of teaching experience.

Misuses and Limitations of the ATI

While the original creators of the ATI have reported some of the weaknesses and limitations of the study, Meyer and Eley (2006) felt that there was not an existing independent analysis of the inventory. In their 2006 report, they presented a historical review and critique of the ATI and its uses. Prior to their evaluation of the ATI, however, Trigwell and Prosser (2006) had already reported several potential misuses and limitations of the inventory. First, the inventory's relational focus cannot be used to make value judgments about whether or not a teacher is being teacher-focused or student-focused. Second, scale scores for any one teacher are not comparable and cannot be used to rank a teacher. Finally, the inventory was created to measure two distinct dimensions of approaches to teaching, therefore, it cannot be used to gather a full, rich self-report of all teaching aspects (p. 416).

Meyer and Eley (2006), however, provided a deeper critique of the inventory and offered several criticisms of its creation and use. First, Meyer and Eley stated that there are three basic principles from which an inventory should be developed—1) all inventory development procedures should be fully disclosed, 2) there should be openness and inclusivity in the generation of potential inventory items, and 3) an inventory's scale structures must be grounded in item-response data collected in trialing (p. 645). According to their review, Meyer and Eley suggested that Trigwell and Prosser's development of the instrument departed from these principles. Second, concerns of generalizability and labeling were ignored by Trigwell and Prosser. Meyer and Eley found that the identifying term of "university teacher" across

publications of Trigwell and Prosser led to misconceptions about the original participants of the study. This label, Meyer and Eley argued, suggested that Trigwell and Prosser did not recognize the differentiation between disciplines. Third, the issue of gender bias was ignored in the creation of the original ATI. They pointed out that the gender of the participants in the original study of Trigwell and Prosser was not identified. They found that the majority of the physical science teachers inventoried were men (80-90%), leaving little analysis of the differences that gender may have had on the findings. Finally, Meyer and Eley argued that while Trigwell and Prosser offered some item analysis and statistical review, not enough rationale was provided for the removal and adjustment of some inventory items. In short, Meyer and Eley felt that the ATI was a “methodologically-flawed” and “conceptually-limited” approach to collecting data. They reported that the ATI “does not reflect a functionally useful range of approaches to teaching and its applications to activities connected with the professionalism of university teaching is rejected” (p. 647). However, based on the findings of studies since the Meyer and Eley critique, the ATI has been found to be a reliable and valid measurement instrument.

Implications for Teaching

Defining conceptions of teaching is important to understanding teachers’ approaches to teaching and learning. Use of the ATI to measure teachers’ approaches to teaching has been shown to be an important tool in examining teaching context. Trigwell et al. (2005) found that the empirically supported, theoretical base of the ATI suggests reflection of the aspects of teaching is directly connected with the quality of student learning (p. 358). Study results

suggested that CCSF approaches to teaching correlate positively with deep approaches to learning and ITTF approaches correlate positively with surface approaches to learning (Trigwell & Prosser, 2004). Trigwell and Prosser (2004) reported that adopting a CCSF approach is more likely to lead to high quality student learning and to greater teaching satisfaction (p. 419). The most important finding of studies using the ATI is that the way in which teachers perceive their teaching context—workload, student characteristics, class size—will affect the way in which they teach. A teacher’s perceptions can have a negative effect on student learning if he approaches teaching from an ITTF approach; therefore, department heads and academic leaders need to pay attention to the context in which they require their teachers to teach and to what training teachers have received, which may influence their beliefs about teaching and learning.

Postsecondary Teachers’ Approaches to Teaching and Learning

The remaining review will focus on affects of teacher education on postsecondary teachers’ beliefs and practices. One important finding among studies of postsecondary teachers’ approaches to teaching is that many teachers have undergone insufficient training to transfer their beliefs about teaching to appropriate teaching strategies (Norton et al., 2005). Teachers, therefore, fail to create a constructive, student-centered learning classroom which lends itself to changing students’ conceptions of learning.

By integrating a constructive approach to teaching, teachers can create active, deep learning which encourages understanding and conceptual change among students (Struyven et al., 2010). Increasing students’ awareness of learning how to learn is an important part of

teaching. For example, the study by Kjellgren et al. (2008) included two courses focused on the development of metacognitive skills within the learning context. The first course was designed to assist students as they began their academic career in higher education. The second course was developed to help teachers gain a better understanding of and approach to educational development. The teachers' course included both pedagogic and didactic learning perspectives, as well as opportunities to tutor a group of students from the student course while the teachers, themselves, acted as students in their training course. The results of the teacher course, as evaluated using the ATI, revealed that, in general, teachers appreciated the theoretical and practical experience of the teaching course and that they left the course with a more student-centered teaching focus. The pairing of teaching and being a student, according to Kjellgren et al. resulted in changes of the understanding of a teaching situation that led to changes in teaching and to improved student learning. Their results suggest that providing postsecondary teachers with pedagogical teaching skills will result in improvement to student learning and an increase in the tendency to use a deeper approach to learning (e243).

Using a revised version of a beliefs and intentions questionnaire, Norton et al. (2005) investigated whether teachers' beliefs and intentions were influenced by key variables such as the participants' institution, academic discipline, amount of teaching experience, personal characteristics (i.e. gender), and exposure to pedagogical training. The results of their study indicated that 1) teachers from different disciplines approach teaching and learning differently and the approach is largely the result of differences in teachers' beliefs about teaching within that

discipline, 2) years of teaching experience had little influence on teachers' beliefs about teaching, rather, the beliefs held by teachers were mostly dependent upon their prior experiences within the educational system as students, 3) teachers' intentions (approaches to teaching and learning) may be affected by number of years in teaching service, 4) women are more inclined to teach within a conceptual change—working toward facilitation of learning—framework than men, who were more likely to hold the belief that teaching is a knowledge/information transmission function, and 5) exposure to training programs that focused on teaching and learning did not have an effect on the participants' beliefs or teaching intentions. The last finding is significant in comparison to studies which have concluded that participation in “conventional training programmes” leads to improvements in approaches to teaching (p. 561). Norton et al. reported that other studies have suggested that development and change of teachers' beliefs about teaching and learning can only be done via programs specifically designed to bring about conceptual changes aimed at creating a student-centered learning environment. They also noted that their study results were based on participants' self-reports rather than on observations of actual teaching practices. They reported that previous research has shown that a teacher's self-report may not actually match others' observations of the teacher's behavior. Further, Norton et al. suggested that a direct link between observation and self-report had yet to be confirmed. They also reported concerns about the contextual differences of teachers' beliefs and approaches to teaching. For example, they suggested that someone teaching first-year undergraduate students may adopt an information-transmission approach when teaching, but that same teacher may

adopt a learning-facilitation approach when teaching post-graduate students. Despite these findings, ultimately, their study confirm an underlying consistency between teachers' beliefs and approaches to teaching in higher education, further supporting the need for teacher education for university teachers.

Next, Light et al. (2009) conducted a four-year empirical study focused on the impact that participation in a year-long faculty development program, aimed at improving teaching, had on tenure track faculty's approaches to teaching at the university level. They began by noting that the quality of teaching at research-driven, postsecondary institutions is a growing concern as the emphasis of most research universities is on faculty research and publication, and less on teaching and instruction. As these concerns continue to rise, focus and creation of faculty and professional development programs within the university have also increased in an effort to improve the quality of instruction offered to students.

The Light et al. (2009) study addressed the need for formal professional development activities that would impact key constructs of teaching and learning. Previous studies cited in their paper revealed that participation in formal faculty development programs (FDPs) increased the extent to which instructors adopted student-centered approaches to teaching; thereby improving student approaches to learning—the ultimate goal of a quality teacher (Light et al., 2009, p. 170). Light et al. reported that in order for teachers to adopt a student-centered approach to instruction, thus moving toward more quality teaching, a learner-centered conception of teaching is required. Further, they suggested that a student-centered approach to teaching would

yield deeper approaches to learning from the students (p. 169). Like other FDPs examined, the FDP of the Light et al. study included goals such as the development of specific teaching skills, the increased ability to reflect on teaching practice, and the development of self-confidence among participating teachers (p. 170).

Participants in the Light et al. study took part in a comprehensive, eight-month FDP designed to “facilitate deeper knowledge, understanding, and expertise in learning and teaching” among its attendees (p. 170). The participants represented a range of disciplines from science, medicine, engineering, the social sciences, and humanities, and participants were encouraged to take evidence-based approaches to teaching and learning and to develop or revise a new or existing course based on their participation in the program. Data analysis of the mixed method approach of the study indicated that there was a positive change toward student-centered teaching practices and conceptual change/student focused approaches to teaching by the study participants, thus supporting the claims that exposure to pedagogical constructs is an important part of the work toward developing quality teachers who place the needs and learning outcomes of students first.

Finally, Gibbs and Coffey (2004) also studied the effects of formal teacher training on university teachers. Using an adapted version of the ATI, they measured the extent to which teachers adopted a deep approach to teaching as a result of their participation in a teacher training program. The programs at each university within the study contained courses that had received formal academic approval and quality assurance authentication. Unlike other studies,

Gibbs and Coffey included a control group of teachers who did not participate in the training program so they could measure the actual impact of the training. Their study results indicated that formal training can increase a teacher's tendency to approach teaching with a more student-centered focus. Because of the culture of teaching adopted by many universities, Gibbs and Coffey suggested that providing teachers with formal training at the beginning of their careers, rather than after they are exposed to a culture which devalues teaching, will increase the chances that teachers will move away from teacher-centered instruction to a more student-centered/conceptual change approach.

Summary

Research findings support the idea that exposure to teacher education training has a positive impact on both teachers' beliefs about teaching as well as their approaches to teaching. For example, teachers who participate in constructivist-centered training programs are more likely to adopt student-activating approaches to instruction and are more likely to provide their own students with a student-centered learning environment (Struyven et al., 2010). However, the relatively small amount of research that exists regarding postsecondary educators' beliefs does not include an examination of community college teachers' beliefs about teaching and learning; therefore, the current study will specifically examine the beliefs held by community college instructors and will add to the existing literature by focusing on the importance of providing community college instructors with the pedagogical training necessary to adopt student-centered beliefs and practices.

CHAPTER THREE: METHODOLOGY

The study that follows focused on a specific population of community college instructors who were part of a formal program designed for tenure-seeking candidates. Based on the findings reported in studies measuring the relationship between teachers' beliefs and approaches and their involvement in professional development courses, I formulated the following hypotheses to guide the study:

Hypotheses

1. Community college instructors who have received training in teaching methods, pedagogy, curriculum, and/ or instruction during the tenure process are more likely to hold beliefs that center in a conceptual change approach and less likely to hold beliefs that center on an information transfer approach than those instructors who have not received training in teaching methods, pedagogy, curriculum, and/ or instruction.
2. Community college instructors who have received training in teaching methods, pedagogy, curriculum, and/ or instruction during the tenure process are more likely to embrace a conceptual change pedagogy and less likely to engage in an information transfer pedagogy than those instructors who have not received training in teaching methods, pedagogy, curriculum, and/ or instruction.
3. Categorical variables such as gender, age, ethnicity, level of education, and academic discipline are correlated to instructors' beliefs about teaching and learning among community college instructors.

A) According to Norton et al. (2005), women are more likely to hold conceptions of teaching as learning facilitation than men; therefore, I hypothesized that female instructors are more likely to score higher on the CCSF:Beliefs/Intentions subscale than male instructors.

B) In the absence of research that discusses the relationship between teachers' age and their beliefs about teaching and learning, studies that report the relationship between years of teaching experience and teacher beliefs were examined. Based on claims by Norton et al. (2005) and Prosser et al. (2003), which state the longer a person teaches, the more likely he is to hold student-centered beliefs about the teaching and learning process, I hypothesized that older instructors are more likely to score higher on the CCSF:Beliefs/Intentions subscale.

C) Results for differences in ethnicity are not presented in most of the research on teachers' beliefs, so I hypothesized that ethnicity has relationship to an instructors' beliefs or intentions.

D) While Lam and Kember (2006) claimed that educational background does not influence teachers' beliefs and approaches to teaching, Buehl and Fives (2009) reported that scholarship in the content disciplines/formal academic preparation (for example, college course work) does influence teachers' beliefs about teaching and learning. Therefore, I hypothesized that instructors holding a master's degree

are more likely to score higher on the CCSF:Beliefs/Intentions subscale than those instructors holding a bachelor's degree.

E) Research suggests that instructors in the hard disciplines (for example, math and science) adopt information transfer beliefs about teaching, while instructors in the soft disciplines (for example, education and history) adopt student-centered conceptions of teaching and learning (Norton et al., 2005; Neumann, Parry, & Becher, 2002; Postareff et al., 2007). I hypothesized, then, that instructors in the soft disciplines are more likely to score higher on the CCSF:Beliefs/Intentions subscale than those instructors in the hard disciplines.

Participants

Eighty tenure seeking instructors affiliated with the Teaching and Learning Academy at a large community college located in the southern part of the United States were invited to participate in this study. The participants were identified as those individuals who were in one of three stages of the college's three year tenure process at the time of data collection. For the purpose of the study, the participants were broken into three subgroups: 1) Class of 2011 instructors ($n = 30$) who are in the third year of their tenure work and have completed the required professional development courses and the faculty portfolio, 2) Class of 2012 instructors ($n = 14$) who are in the second year of their tenure work and who have completed some of the professional development training and begun drafting their faculty portfolio, and 3) Class of 2013 instructors ($n = 36$) who have just begun their tenure process but not yet completed any

professional development work or work on their portfolio. A lack of pre-service teacher education programs specifically geared toward community college instructors led to the selection of instructors associated with the Teaching and Learning Academy at the community college.

Pre-tenure TLA Program

According to the college's website, the TLA is the pre-tenure candidate's faculty development support system; TLA provides support in pedagogy, course design, and the development of student learning. Candidates' learning needs are addressed through seminars, workshops, roundtables, and one-to-one coaching. Pre-tenure faculty in the TLA follow a faculty development calendar of required and optional courses offered during the three year process. The required year-1 PD courses focus on the development of the Essential Competencies of an educator. During the subsequent two years, candidates are encouraged, but not required, to take additional PD courses which they feel would benefit their professional development goals. In addition to the professional development seminars and workshops, participants of the TLA develop an Individualized Learning Plan (ILP). The ILP is the tenure candidate's professional development plan/portfolio. The plan includes 2-3 specific Faculty Learning Outcomes (FLO), including at least one action research project, which are written in terms of what the tenure candidate wants to learn and/or be able to do in order to improve student learning. The FLOs must be learning-centered, assessable, specific to the individual, and related to the Essential Competencies identified by the college as necessary to be an effective educator. Additionally, each FLO must be demonstrable in a product or performance that can be judged according to

explicit criteria as assessed by a trained Tenure Review Committee made up of deans, administrators, and tenured faculty.

Measure

Approaches to Teaching Inventory-Revised (ATI-R)

Following a series of trial experiments during its development, the ATI-R, which began as a 104 statement inventory, underwent several iterations until it was reduced to a 22 item survey. The 22 item survey consists of two scales; Information transfer/Teacher-focused (ITTF) and Conceptual Change/Student-focused (CCSF). Each scale contains eleven generally phrased item statements of either a teaching action or a teaching belief or value (Meyer & Eley, 2006). Example questions from the ITTF scale include “In this subject students should focus their study on what I provide them” and “It is important to present a lot of facts to students so that they know what they have to learn for this subject.” Example questions from the CCSF scale include “In my interactions with students in this subject I try to develop a conversation with them about the topics we are studying” and “Teaching in this subject should include helping students find their own learning resources.” Responses are given on a five-point scale (0=*only rarely, or never* to 5= *almost always or always*) relative to a particular teaching context.

The most recent version of the Approaches to Teaching Inventory (ATI-R) will be used in this study. It is a revised version of the original ATI developed by Trigwell and Prosser. Permission to use ATI-R for this specific study was granted by Dr. Trigwell (K. Trigwell, personal communication, July 13, 2010; see Appendix F). Further, permission to use ATI has

been granted by Dr. Trigwell to any researcher who acknowledges the source of the inventory in the study, notifies Dr. Trigwell of his intention to use the inventory, and makes the raw results of the inventory data available to Dr. Trigwell and Dr. Prosser once the data have been used.

Background of the ATI-R

Dr. Keith Trigwell, Professor of Higher Education at The University of Sydney, and Michael Prosser, Professor and Executive Director at The University of Hong Kong, began their early work together examining teachers' approaches to teaching and learning. The creation of the original ATI was based on Trigwell and Prosser's research investigating postsecondary teachers' approaches to teaching and learning and students' approaches to learning within the classroom. According to research notes on the ATI-R, the revised version of the original ATI, the main use of the inventory has been as a source of data collection for analyses of associations within a specific teaching context (K. Trigwell, personal communication, July 13, 2010).

Development of the ATI

The development of the original ATI was in response to the qualitative study by Trigwell, Prosser, and Taylor (1994) which examined deep approaches to learning and surface approaches to learning. According to their findings, they found that deeper approaches to learning are related to higher quality learning outcomes. Based on previous studies within the field of student learning in higher education, Trigwell, Prosser, and Waterhouse (1999) reported that students approach learning at a deep level if they perceive the quality of teaching to be high, experience some independence in choosing what is to be learned, and observe clear goals and standards

required in the subject to be learned. Further, they reported a) students' learning approaches and their perceptions of learning are related, and b) the teaching approach adopted by teachers is also related to teachers' perceptions of their teaching context; however, gaps in previous studies as well as their own work raised questions as to the relationship between teachers' approaches to instruction and students' approaches to learning (Trigwell et al., 1999).

Trigwell and Prosser's work on the development of the ATI began with an examination of teaching approaches adopted by 24 university science teachers (Trigwell et al., 1994). In the 1994 phenomenographic study—"an empirical study of the limited number of qualitatively different ways in which we experience, conceptualize, understand, perceive, and apprehend various phenomena in and aspects of the world around us" (Trigwell & Prosser, 2004, p. 409)—they collected qualitative data aimed at identifying the key aspects of the variation in approaches to teaching among teachers. Analysis of the interview transcripts and factor and scale reliability analysis of the selected inventory items revealed the following five categories of approaches to teaching:

- Approach A: Teacher-focused strategy with the intention of transmitting information to students
- Approach B: Teacher-focused strategy with the intention that students acquire the concepts of the discipline
- Approach C: A teacher/student interaction strategy with the intention that students acquire the concepts of the discipline

- Approach D: A student-focused strategy aimed at students developing their conceptions
- Approach E: A student-focused strategy aimed at students changing their conceptions

Two of the five categories of description, representing the variation in the approaches to teaching, formed the basis for the development the ATI. These two extreme categories were found to be of most relevance to the work of Trigwell and Prosser (Trigwell & Prosser, 1996). First, Approach A, also referred to as the Information transmission/teacher-focused (ITTF) approach, involves a teacher-focused strategy with the intention of transmitting information to students with emphasis on facts and skills and little focus on establishing a relationship between the two. Further, an ITTF approach does not assume that a student need to be active in the learning process, rather the focus of instruction is teacher-centered. Second, Approach E, known as the Conceptual change/student-focused (CCSF) approach, involves teaching using a student-centered teaching strategy, which encourages students to be active constructors of knowledge (Trigwell et al., 1999).

In addition to the inclusion of the two categories, Trigwell and Prosser further identified three key issues in the development of the ATI. First, the questions had to measure the key variation between an information transmission/teacher focused view of teaching and a conceptual change/student focused view of teaching. Second, the items had to be phrased in a

way in which teachers could see their own experiences in teaching. Third, the inventory had to be small enough in length that busy university teachers would complete it.

Using an early model of the ATI, Trigwell and Prosser began to explore the relationship between teachers' approaches to teaching and learning and students' approaches to learning. Their 1999 study (Trigwell et al., 1999) was aimed at exploring two key components of the teaching and learning context. First, they examined the extent to which a surface approach to learning is associated with an information transmission/teacher-focused approach to teaching. Second, they examined the extent to which a deep approach to learning is associated with a conceptual change/student focused approach to learning. The inventory used in the 1999 study included two scales—ITTF and CCSF—extracted from their 1994 phenomenographic study. Each scale also contained two subscales—Intention and Strategy—and was the first study of its type to investigate higher education teachers' reports of their approach to teaching rather than the students' perceptions of teaching methods and it was the first to report the relationship between teachers' approaches to teaching and students' approaches to learning. To examine the relationship between the teachers' approaches to teaching and students' approaches to learning, data were collected from students and teachers. The teachers were asked to complete the ATI and students were asked to complete a version of the Study Process Questionnaire developed by Biggs (1987). The results of their study revealed that teachers who described their teaching as an information transmission/teacher focused approach were more likely to be teaching students who reported adopting a surface approach to learning (Trigwell et al., 1999). Trigwell et al. further

reported that their study findings were consistent with previous studies which found that students who described their learning experiences as “good” often adopted a deeper approach to learning. According to their research, these students are often taught by teachers who recognize the need to approach the teaching context from a student-centered perspective in which they place the student as the focus of their teaching activities by encouraging self directed learning. The inventory was, therefore, adopted as a method by which to examine the relation between teachers’ approaches to teaching and the context in which they teach.

Continued work on the ATI has been done by Trigwell and Prosser since its creation. The original inventory was created to examine university physical science teachers’ approaches to teaching, so in 1999 the wording of some of the items were modified to accommodate more flexible learning contexts than those found in the field of science (Trigwell & Prosser, 2004). In 2004, a more generalized version of the inventory, which contained items that had been changed to a more succinct form, was tested and published by Trigwell and Prosser (Trigwell et al., 2005). Today, a revised version of the ATI is in use—Approaches to Teaching Inventory – R. While the ATI-R still measures the relation between teaching approaches and teaching context, it was adapted from the original ATI to accommodate more flexible learning environments (K. Trigwell, personal communication, July 13, 2010). The ATI-R retains the two scales, ITTF (Items 1, 2, 4, 6, 9, 10, 11, 12, 16, 19, 22) and CCSF (Items 3, 5, 7, 8, 13, 14, 15, 17, 18, 20, 21), from the original ATI. Each of the two scales is further broken into two subscales: Beliefs/Intention and Approaches/Strategy (Prosser & Trigwell, 2006). According to research

from Norton et al. (2005), the subscale ‘intention’ is actually concerned with teachers’ beliefs about teaching and the subscale ‘strategy’ is actually concerned with the teachers’ intentions and approaches to teaching and learning. Further, intentions/conceptions of teaching can be seen as the beliefs about teaching that guides a teacher’s perceptions and shapes his actions. Approaches to teaching are the way those beliefs are put into practice (Lam & Kember, 2006, p. 694), which is consistent with the intent of this study on teachers’ beliefs; therefore, I will refer to the subscales as CCSF:Beliefs and ITTF:Beliefs and CCSF:Approaches and ITTF:Approaches in this study.

Reliability and validity of the ATI

Based on a principal components analysis with varimax rotation, a test of alpha reliability, and a confirmatory factor analysis of the inventory and the nature of the results obtained from studies using the ATI, the ATI was found to be both a valid and reliable measurement instrument for measuring key aspects of the various ways in which teachers approach teaching (Trigwell & Prosser, 2004; Trigwell et al., 2005). The results of the rotated factor matrix support the use of the two-scale structure of the inventory, and scale reliability using Cronbach’s alpha for both the ITTF (.73) and the CCSF (.75) scales suggest that the inventory has statistical reliability (Trigwell & Prosser, 2004). Further, Trigwell and Prosser (2005) reported that the validity of the inventory is supported from results of studies showing the relations between teachers’ approaches to teaching and their students’ approaches to learning (p. 420). Study results using the ATI demonstrate that the inventory yields consistent findings

concerning the relationship between teachers' approaches to instruction and their teaching context. Finally, the data has been found to be interpretable in the form expected using the educational principles from which the inventory was developed (p. 420). Therefore, Trigwell and Prosser claimed that the ATI is a valid and reliable indicator of variation in approaches to teaching and has a factor structure consistent with its original design (2005, p. 353).

According to Trigwell and Prosser, there are not established norms for the inventory as the ATI-R is to be used in a relational way and participant responses are specific to the context in which the data was collected. For example, "teachers who adopt a teaching approach in one context may not adopt the same approach in a different context" (K. Trigwell, personal communication, July 13, 2010; Trigwell & Prosser, 2004).

Demographic Information

Seven questions designed to elicit demographic information (age, gender, ethnicity, level of education, academic discipline, year in tenure process, and number of completed professional development courses) were added to the end of the ATI-R.

Procedures

Internal Review Board (IRB) approval was obtained from both the community college where the participants teach and from the University of Central Florida. Once appropriate permissions were granted to conduct the study, the primary investigator contacted the director of the Teaching and Learning Academy at the community college to identify the participants for the

study. Participants were selected based on their class standing at the time of study within the pre-tenure process.

The participants were notified, via email, by the primary investigator at the beginning of the fall 2010 semester requesting their participation in a doctoral dissertation study. The e-mail introduced the researcher, indicated the colleges' authorization, provided support for the study, indicated how anonymity and confidentiality will be protected (via Informed Consent form), and requested participation. A link to Zoomerang™ (2010) (an online survey tool) was provided within the email, along with instructions on how to access and complete the on-line ATI-R. Additionally, the full URL was provided for participants who chose to enter the site manually. Individuals wishing to participate in the study were simply asked to go to the Zoomerang™ site to complete the survey.

Once participants entered the Zoomerang™ site, they were presented with a reminder of the purpose of the study and were greeted with a note of thanks for their participation. Participants were required to acknowledge receipt of the Informed Consent form and to agree to voluntarily participate in the anonymous survey. Participants who agreed to participate in the study were presented with the modified ATI-R survey.

Data Analysis

Using Lipsey's (1990) Sample Size Table (cited in Creswell, 2008) and GPower Software, a priori power analysis was conducted where the level of significance is alpha $\alpha = .05$,

the power needed to reject the null hypothesis is .80, and the effect size is $f = .3$, resulting in a needed total sample size of 69.

Because the participants were partitioned into cohorts based on their status in the college's tenure process, a true experiment could not be designed. Using a quasi-experimental design, quantitative data was collected using the Approaches to Inventory-Revised (ATI-R) self-report measure. A quantitative analysis is a straightforward manner by which to assess whether participation in professional development courses has an influence on teachers' beliefs about and approaches to teaching and learning. This method assumes that teachers' self-reports to the ATI-R survey questions will match their enacted practices.

The two subscales of the ATI-R measure the extent that a teacher is student-centered or teacher-centered. CCSF and ITTF sum scales for the Beliefs and Approaches subscales were calculated and the sum scale scores were used in the statistical analysis using SPSS. Additionally, to examine demographic differences between instructor group responses, summary statistics were calculated for each covariate (age, gender, ethnicity, academic discipline, and level of education, number of PD courses taken).

To test the first hypothesis, "Community college instructors who have received training in teaching methods, pedagogy, curriculum, and/ or instruction during the tenure process are more likely to hold beliefs that center in a conceptual change approach to teaching than those pertaining to an information transfer approach than those instructors who have not received training in teaching methods, pedagogy, curriculum, and/ or instruction," multivariate analyses

of variance (MANOVA) was used to explore the differences in the three instructor groups' scores on the CCSF and ITTF Beliefs subscale. MANOVA was used to find out if instructors' beliefs about the way they approach the teaching process are more centered on conceptual change.

To test the second hypothesis, "Community college instructors who have received training in teaching methods, pedagogy, curriculum, and/ or instruction during the tenure process are more likely to embrace a conceptual change pedagogy and less likely to engage in an information transfer pedagogy than those instructors who have not received training in teaching methods, pedagogy, curriculum, and/ or instruction," multivariate analyses of variance (MANOVA) was used to explore the differences in the three instructor groups' scores on the CCSF and ITTF Approaches subscale. MANOVA was used to find out what strategy, either CCSF or ITTF, the instructors employ in their classrooms.

To test the third hypothesis, "Categorical variables such as gender, age, ethnicity, level of education, academic discipline, and number of PD courses taken influence instructors' beliefs about and approaches to teaching and learning among community college instructors," analysis of covariance (ANCOVA) was used to determine if the covariates above have an influence on instructors' beliefs and approaches to teaching in each of the three participant groups.

Data were analyzed using SPSS 12.0. The remaining chapters contain the results of the study as well as a discussion and analysis of the findings.

CHAPTER FOUR: RESULTS/ANALYSIS

Descriptive Statistics

A total of 80 instructors currently going through the TLA tenure program at the community college were contacted, via email, and asked to complete the on-line Zoomerang® ATI-R questionnaire. Participants were given fourteen days to complete the questionnaire and were sent one reminder seven days following the original email request. The questionnaire was visited 56 times, one questionnaire was only partially completed, and 40 were completed; representing a 50% completion rate, which is considered to be a good response rate for an on-line survey (Nulty, 2008). The 40 complete questionnaire responses were used in the data analysis. Of the questionnaires completed, 14 were completed by instructors in the tenure class of 2011 (35% of total respondents), 8 were completed by instructors in the tenure class of 2012 (20% of total respondents), and 18 were completed by instructors in the tenure class of 2013 (45% of total respondents). A post hoc sample analysis using the GPower software indicated that a sample size of 40 at an alpha $\alpha = .10$ with a medium effect size ($ES = .30$) would have a power of .75. See Figure 2. The low sample size suggested the need to increase alpha from .05 to .10 in order to increase the likelihood of rejecting the null hypothesis, thereby reducing the Type II error rate (Miles, n.d.).

Gender

The gender ratio of the sample was skewed—73% of the total number of instructors invited to complete the Zoomerang® ATI-R questionnaire were female. Additionally, female instructors participated in slightly higher numbers than males—51% of the female instructors invited completed the questionnaire and only 43% of the males invited completed the questionnaire. Nearly 77% of all questionnaires were completed by female faculty members. See Table 1.

Age

While study participants ranged in age groups, 47.5% of participants reported their ages as between 26 and 55; average age = 40. Participants in the 2013 TLA year group tended to range slightly more in ages from 18 to 65 while the majority of participants in the 2011 and 2012 TLA groups ranged in ages 26 to 55. See Table 1.

Ethnicity

The majority of participants reported being White (72%), which is consistent across the three TLA groups. The remaining participants reported being Black or Hispanic, each accounting for 10% of the total population. Three participants reported their ethnicity as other (7.5%). See Table 1.

Education Level

According to the community college's 2009/2010 records, 71.1% of full-time faculty possess a Master's degree. In this study, 77% of participants hold a master's degree and nearly

17% of the questionnaires were completed by instructors with a doctorate. Baccalaureate degree holders accounted for 5%, and one respondent did not report his level of education. See Table 1.

Discipline

There is representation across the disciplines among participants. While communications instructors accounted for the largest number of respondents ($n = 9$; 23%), health services and math each accounted for about 21% of the respondents' disciplines. The other disciplines ranged in participants response rates from 3% - 10%. For the purposes of the data analysis, disciplines were combined into two categories; soft disciplines (i.e. communications, fine arts) and hard disciplines (i.e. math, business, IT). A larger number of participants reported teaching in the soft disciplines ($n = 25$) than in the hard disciplines ($n = 13$). See table 1.

Table 1: Demographics

Gender	<i>n</i>	Age	<i>n</i>	Ethnicity	<i>n</i>	Education	<i>n</i>	Discipline	<i>n</i>
Female	30	18-25	1	Black	4	Bachelor's	2	Soft	25
Male	9	26-35	14	Hispanic	4	Master's	30	Hard	13
NR	1	36-45	15	White	29	Doctorate	7	NR	2
		46-55	9	Other	3	NR	1		
		56-65	1						
<hr/>									
Total	$N = 40$								

Note. NR = No Response

Analysis of Research Questions

The research questions presented in the study seek to examine the differences between the three TLA Year groups. The first hypothesis states participants in the 2011 TLA Year, who have completed all of the professional development course work associated with the TLA program, will hold beliefs and teaching practices that are more centered in a conceptual change approach than an information transfer approach. The second hypothesis states the 2011 TLA Year participants will score higher on the CCSF subscales Beliefs and Approaches than the 2012 and 2013 TLA Year groups. The means and standard deviations for each of the TLA Year groups are presented in Table 2. The third hypothesis states that the categorical variables gender, age, ethnicity, level of education, and academic discipline will influence instructors' beliefs about teaching and learning among community college instructors.

Table 2: Means and Standard Deviations of Participant Responses on ATI-R Scales

TLAYR		ITTF:Beliefs	ITTF:Approaches	CCSF:Beliefs	CCSF:Approaches
2011	<i>M</i>	17.50	23.00	19.00	21.79
	<i>SD</i>	3.716	3.397	3.981	4.509
2012	<i>M</i>	17.13	21.50	21.63	23.13
	<i>SD</i>	2.295	3.586	2.774	3.643
2013	<i>M</i>	18.17	24.50	21.00	23.56
	<i>SD</i>	3.792	3.204	3.029	3.884
Total	<i>M</i>	17.72	23.38	20.42	22.85
	<i>SD</i>	3.464	3.462	3.441	4.048

Test Results for Research Question #1

A MANOVA design was applied to examine the effect of participation in the TLA courses in teaching methods, pedagogy, curriculum, and/ or instruction (three groups) on beliefs

about teaching and learning. I hypothesized that those instructors who had participated in the courses in teaching methods, pedagogy, curriculum, and/ or instruction would be more likely to hold beliefs that center in a conceptual change approach, rather than an information transfer approach, than those instructors who have not received training in teaching methods, pedagogy, curriculum, and/ or instruction. The mean score for the CCSF:Beliefs subscale was $M = 20.42$, $SD = 3.44$ and the mean score for the ITTF:Beliefs subscale was $M = 17.72$, $SD = 3.46$. However, the results revealed that there was no significant difference between participants' beliefs about teaching toward a more conceptual change framework among the three groups, $F(4,70) = 1.19$, $p = .322$, $\eta^2 = .064$, see Table 3.

Table 3: MANOVA Hotelling's t Test Result: TLA Year and Beliefs

Effect	Value	F	H_o	df	Error df	p value	η^2
TLAYR Hotelling's Trace	0.136	1.19	4	70	0.322	0.0764	

* Computed using alpha = .10

Test Results for Research Question #2

A MANOVA design was applied to examine the effect of participation in the TLA courses in teaching methods, pedagogy, curriculum, and/ or instruction (three groups) on approaches to teaching and learning. I hypothesized that those instructors who had participated in the courses in teaching methods, pedagogy, curriculum, and/ or instruction would be more likely to embrace a conceptual change pedagogy, rather than an information transfer approach, than those instructors who have not received training in teaching methods, pedagogy, curriculum,

and/ or instruction. The mean score for the CCSF:Approaches subscale was $M = 22.85$, $SD = 4.04$ and the mean score for the ITTF:Approaches subscale was $M = 23.38$, $SD = 3.46$. However, the results revealed that there was no significant difference between participants' approaches to teaching among the three groups, $F(4,70) = 1.42$, $p = .234$, $\eta^2 = .075$, see Table 4.

Table 4: MANOVA Test Result: TLA Year and Approaches

Effect	Value	<i>f</i>	<i>H_o</i>	<i>df</i>	Error df	<i>p</i> value	η^2
TLAYR Hotelling's Trace	0.163	1.426	4	70	0.234	0.075	

* Computed using alpha = .10

Test Results for Research Question #3

Test Results for Research Question 3:A—Gender

An independent samples t-test was run to compare the mean scores on the CCSF:Beliefs subscale between female ($n = 30$) and male ($n = 9$) participants. The t-test evaluates the difference between the two independent groups, male and female, where I hypothesized that females would score higher on the CCSF:Beliefs subscale than men. The results of the t-test show that there is no statistically significant difference in scores based on gender; equal variances not assumed, $t(27) = .841$, $p = .408$, where $p > .05$, see Table 5.

Table 5: T-test for Equality of Means

Variable	<i>t</i>	<i>df</i>	<i>p</i> value	Mean Difference	<i>LL</i>	<u>95% CI</u> <i>UL</i>
CCSF:Beliefs	.841	27.368	.408	.951	-.82	2.42

* Computed using alpha = .10

Test Results for Research Question 3:B—Age

To test whether age was related to participants' scores on the CCSF:Beliefs subscale, a one-way ANOVA design was applied. Age was not related to participants' scores on the CCSF:Beliefs subscale, $F(4,35) = .762$, $p = .557$, $\eta^2 = .08$, see Table 6.

Table 6: ANOVA Test Result: Age and CCSF:Beliefs

Source	Type III Sum of Squares	<i>df</i>	Mean Square	<i>F</i>	<i>p</i>	η^2
Age	37.013	4	9.253	.762	.557	.080
Error	424.762	35	12.13			

Test Results for Research Question 3:C—Ethnicity

Due to lack of variance in ethnicity, no analyses were conducted on this variable.

Test Results for Research Question 3:D—Level of Education

Using the one-way ANOVA design, Level of Education was found to be unrelated to CCSF:Beliefs, $F(2,36) = .098$, $p = .907$, $\eta^2 = .00$, see Table 7.

Table 7: ANOVA Test Result: Level of Education and CCSF:Beliefs

Source	Type III Sum of Squares	<i>df</i>	Mean Square	<i>F</i>	<i>p</i>	η^2
Education	2.49	2	1.24	.098	.907	.005
Error	457.2	3	12.70			

Test Results for Research Question 3:E—Discipline

To analyze the relationship between instructors’ teaching discipline on beliefs, the categories of discipline from the ATI-R questionnaire were collapsed into two discipline categories: 1) Soft—Humanities, Communication, Health Services, Fine Arts, Library Services, Foreign Language, and Behavioral Sciences; 2) Hard—Business and IT, Architecture and Engineering, and Math. An independent samples t-test was done where no significant differences between participants’ scores on the CCSF:Beliefs’ subscale were found between the soft disciplines ($n = 25, M = 20.92, SD = 2.98$) and the hard disciplines ($n = 13, M = 19.23, SD = 4.08$), equal variances not assumed, $t(18) = 1.31, p = .203$, see Table 8.

Table 8: T-test for Equality of Means

Variable	<i>t</i>	<i>df</i>	<i>p</i> value	Mean Difference	<i>LL</i>	<u>95% CI</u> <i>UL</i>
CCSF:Beliefs	1.13	18.86	.203	1.68	-.526	3.90

CHAPTER FIVE: DISCUSSIONS/CONCLUSIONS

Key Findings

The aim of this dissertation study was to examine whether courses in teaching methods, pedagogy, curriculum, and/ or instruction would be related to community college instructors' beliefs about and approaches to teaching and learning. Previous studies have suggested that participation in professional development courses is positively correlated to shifts in teachers' beliefs and approaches to teaching and instruction toward a student-centered focus (Coffey & Gibbs, 2004; Light et al., 2009); however, there is a lack of existing research focused on the impact of professional development on higher education faculty, specifically community college instructors. Therefore, the focus of this study was to discover if the beliefs about and approaches to teaching and learning of instructors who had participated in the pre-tenure Teaching/Learning Academy (TLA) program at a local community college were focused on creating a student-centered learning environment rather than a teacher-centered learning environment.

The findings of this study are similar to the results reported by Norton et al. (2005) who suggested that exposure to training programs that focused on teaching and learning did not have an effect on the participants' beliefs or teaching approaches. Like the results of the present study, Norton et al. found no difference in the scores of instructors who had participated in a program on teaching and learning in higher education and those instructors who had not. Additionally, McKenna, Yalvac, and Light (2009) found that instructors who had no exposure to PD courses held beliefs similar to instructors who had minimal, moderate, and extensive engagement in

workshops, meetings, and seminars focused on teaching methods and course development. Overall, like the findings reported by Norton et al. (2005) and McKenna et al. (2009), the data analyses of this study show that there were no significant differences between the three participant groups' responses to the beliefs or approaches subscales of the ATI-R. In general, results across the participant groups showed no significant movement toward student-centered beliefs or approaches to teaching.

First, data analysis results showed that the participants did not score significantly higher on the conceptual change subscales measuring beliefs and approaches than they did on the information transfer subscales. However, caution in drawing inferences from the raw data for the entire sample must be taken because, according to notes on the ATI-R, the ATI-R has not been normed (K. Trigwell, personal communication, July 13, 2010). The ATI-R was designed to analyze associations within a specific context, so a math instructor's beliefs about and approaches to teaching and learning may differ from an English instructor's beliefs about and approaches to teaching and learning, for example, and may vary further depending on the associations one is attempting to draw from the data

Next, instructors who had completed the PD course requirements for the TLA program did not demonstrate significantly higher scores on the CCSF:Beliefs or CCSF:Approaches subscales than did the instructors with less or no exposure to the same PD courses. On the contrary, findings suggested that the study participants with the least amount of exposure to the courses on teaching methods, pedagogy, curriculum, and/ or instruction associated with the TLA

program had significantly higher rating on the CCSF:Beliefs subscale than the ITTF:Beliefs subscale.

Finally, analysis of the covariate demographic data did not reveal any statistically significant findings between the three participant groups' scores on ATI-R, either. Overall, instructors' gender, age, level of education, and discipline did not seem to have any relationship to an instructor's tendency to hold beliefs grounded in conceptual change rather than information transfer.

Implications

Although the results of this study are limited by a small sample size and low power, the findings have important implications for research as well as existing practice. The results are of worth to the field of higher education; specifically, community colleges that send their instructors through intensive PD courses and programs. The most important implication of such studies is the impact that instructors' beliefs and approaches have on student learning. As research suggests, changes to teachers' beliefs and approaches to teaching will have an effect on the way students approach their studies; therefore, finding ways to bring about positive changes toward student-centered learning beliefs and approaches is of vital importance to the future success of higher education students (Ho, Watkins, & Kelly, 2001).

While it has been generally assumed that instructors in higher education will benefit from participation in formal training programs, Norton et al. (2005) suggested that development and change of teachers' beliefs about and approaches to teaching and learning toward a more

conceptual change framework can only be done via programs specifically designed to bring about conceptual changes. Such programs, Norton et al. commented, will only bring about changes if they address teachers' underlying conceptions of teaching and learning. Further, McKenna et al. (2009) reported that significant changes to one's teaching beliefs and approaches to teaching requires "considerable efforts over a lengthy period of time" as well as "consistent engagement and commitment to educational inquiry" (pp. 23-24). Additionally, in order for instructors to move toward a conceptual change approach, they need to engage in several educational activities that include implementation opportunities of newly established student-centered teaching strategies, as well as opportunities to evaluate and reflect upon the effectiveness of their interventions, and instructors must want to adopt the learner-centered conception of teaching (Light et al, 2009; McKenna et al., 2009). Finally, Postareff et al. (2007) reported that it takes at least a year of training for instructors to experience positive changes toward student-centered conceptions and that the training must be constant.

According to the pre-tenure program under review, the PD courses and the Individualized Learning Plan (ILP) portion of the TLA program are devised to assist the pre-tenure candidate in becoming a student-centered educator whose teaching beliefs and practices are centered on promoting student learning. For example, one of the required PD courses of the TLA pre-tenure program focuses on student learning as the central goal of the instructors' practices. However, there is no discussion about the aim of the program to specifically focus on the teaching beliefs of its instructors. Rather, the specific focus of the program has been identified as teaching

instructors to expand and improve their professional practices and students' learning. Existing research has demonstrated the importance of linking teachers' beliefs to their approaches to teaching (Light et al., 2009). According to Light et al., developing student-centered conceptions of teaching are required before any “real” changes toward improved teaching practices can be achieved; therefore, PD program developers who wish to bring about changes to instructors' approaches to teaching and learning must work toward developing courses and practices that help instructors to first identify their beliefs about teaching and learning and then help them form a relationship between those beliefs and their teaching practices. Programs must be specifically designed to bring about conceptual change among participants, otherwise, instructors' beliefs about and approaches to teaching and learning may not change (Norton et al., 2005)

Next, according to Light et al. (2009), for a professional development plan to be effective at moving instructors toward a student-centered, conceptual change framework of teaching, instructors must not only take courses which provide the concepts and models for student-centered teaching, but they must also have professional reflection and inquiry opportunities. This theory-into-practice approach is an important piece of a formal PD plan (Darling-Hammond, 2006, 2010). Darling-Hammond (2006) identified the cognitive importance of reinforcing and connecting theory to one's practice; therefore, developers of PD programs should closely examine the program design to ensure there are opportunities to put teaching beliefs into action. Such opportunities include the use of portfolios, classroom research, and peer observations

(Darling-Hammond, 2006, 2010). These opportunities should be required, not optional components of a PD program.

According to Rogers (2009), institutions of higher education are encouraged to value teaching as an important component of scholarship, which colleges can achieve by dedicating resources to the study of teaching excellence. Such resources should include teaching and learning opportunities which focus on providing instructors with the tools to maximize student success and build an institution centered on the learning needs of the student population. Based on the results of this study, program developers and college leaders should closely examine the TLA program to ensure that it is working toward developing student-centered instructors who are aware of their beliefs and who create conceptual-change learning environments.

Limitations

Limitations of this study are based largely on the small sample size. Due to the nature of the study, the population from which the sample participants could be selected was limited to only those instructors who were part of the community college's pre-tenure program at the time of the study's development. The small sample size resulted in a low statistical analysis power. Future studies with more statistical power may find statistical significance.

Additionally, the nature of the sample poses potential threats to generalizability. The purposeful selection of candidates enrolled in the TLA program limits the scope of the results to only instructors participating in the pre-tenure TLA program at the time of the study.

Additionally, because the number of instructors enrolled in each TLA year cohort is determined

by the hiring patterns of the college, there was unequal distribution of participants in the three groups analyzed. Further, because participants' teaching experience and background varied, it cannot be assumed that instructors in the TLA program were first time instructors or had not previously taken any PD courses prior to their involvement with the TLA program.

Next, the study lacked pre- and post-test measures, which limited the results by not providing a representation of the participants' tendencies toward or away from a conceptual change framework prior to their involvement in the TLA program. Instead, the study assumed that responses on the ATI-R were directly impacted by the participants' exposure to the PD courses affiliated with the TLA program.

Finally, like many of the studies examining teachers' beliefs, this study includes the self-report answers provided by the participants, presenting a potential threat to the findings. According to Norton et al. (2005), teachers' self report responses might not match others' observations of their behaviors. To strengthen future studies, a qualitative observation of a sample of the instructor participants may be warranted to work toward confirmation of teachers' accounts of their behavior and their direct observed behavior (Norton et al., 2005).

Future Research

To efficiently and thoroughly examine the TLA program examined in this study, a three-year period of time should be devoted to its study in order to follow participants through the entire pre-tenure program. Future studies of such programs should include pre- and post-program questionnaire data to help identify any differences in the scores on the beliefs and approaches

subscales prior to instructors' participation in the TLA pre-tenure program and after their participation in the program. Next, a review of the participants' ILP portfolios may also lend added insights into their ability to put theory into practice. Finally, in-class observations of participants' teaching practices should also be part of the three-year study. This qualitative, observational data collected by future researchers could lead to the creation of follow-up interview questions designed to elicit participants' perceptions of their own beliefs about and approaches to teaching and learning, which may help further explain the quantitative data findings.

Also, the ATI-R questions are designed to elicit responses from participants based on a specific teaching context (Trigwell and Proser, 1996). Future research should make this explicitly clear to participants and solicit information pertaining to the specific teaching context that the instructors are referring to when completing the survey.

Also, future researchers should ask participants to report number of years in service, number of PD courses taken outside of the TLA program, as well as number of PD courses taken while in the TLA program. These data may help identify other factors which may or may not influence beliefs about and approaches to teaching and learning.

Conclusion

In an age where community colleges are becoming more important to the growth of the educated population, are growing rapidly to keep up with the demands of the community, and are working toward competing with four-year universities, equipping classrooms with instructors

who believe in the importance of student-centered learning and who know how to construct and deliver a student-centered learning curriculum is important to the future success of the nation. As discussed in the literature review, efforts are being made by policy makers and stakeholders across the field of academia to increase the quality of today's educators; therefore, identification of the specific constructs which shape instructors' beliefs about and approaches to teaching has become a focal point of academic studies. Specifically, finding ways to shift instructors away from a teacher-centered, information transfer framework toward a more student-centered, conceptual change approach to teaching is important to the future success of student learning. In addition, examination of how beliefs affect approaches to teaching is a key area of research. In response to research findings which suggest that teachers' beliefs about and approaches to teaching and learning are partly influenced by professional development courses, efforts are being made to develop models and methodologies for improved teacher development programs (Ho et al., 2001). Further, because teaching practices have been found to be influenced and shaped by teachers' beliefs (Fives and Buehl, 2010), it is important to study the role PD courses play in the development of teacher beliefs and practices.

A growing body of literature has begun to address the absence of research focused on the impact of training on teaching beliefs and behaviors (Coffey & Gibbs, 2000; Norton et al., 2005; Postareff et al., 2007). However, Light et al. (2009) pointed out that there is still a gap in existing research that theoretically or empirically demonstrates the positive relationship between professional development programs and student learning outcomes among higher education

instructors. Additionally, Postareff et al. (2007) reported that there is lack of adequate evidence in the field of higher education focused on the impact of training on teaching. Both studies suggested that there is a need for more research which examines the impact of professional development programs on higher education instructors' beliefs about and approaches to teaching and learning. This dissertation study, therefore, is an important piece of a growing body of literature.

The findings of this study support claims that participation in professional development programs alone is not related to beliefs or practices grounded in conceptual change. Therefore, additional work and research is needed to 1) gain a better understanding of the role that professional development plays in the shaping of higher education instructors' beliefs and approaches, and 2) to identify the additional factors needed to bring about positive, conceptual-change beliefs and instruction practices among higher education faculty.

APPENDIX A: ATI-R INVENTORY

APPROACHES TO TEACHING INVENTORY-R

This inventory is designed to explore a dimension of the way that academics go about teaching in a specific context or subject or course. This may mean that your responses to these items in one context may be different to the responses you might make on your teaching in other contexts or subjects. For this reason we ask you to describe your context.

For each item 1 – 22 please indicate your level of agreement using a 1-5 rating system. The numbers stand for the following:

- 1 - this item was **only rarely or never** true for me in this subject.
- 2 - this item was **sometimes** true for me in this subject.
- 3 - this item was true for me **about half the time** in this subject.
- 4 - this item was **frequently** true for me in this subject.
- 5 - this item was **almost always or always** true for me in this subject.

Please answer each item. Do not spend a long time on each: your first reaction is probably the best one.

	only rarely				almost always
1. In this subject students should focus their study on what I provide them.	1	2	3	4	5
2. It is important that this subject should be completely described in terms of specific objectives that relate to formal assessment items.	1	2	3	4	5
3. In my interactions with students in this subject I try to develop a conversation with them about the topics we are studying.	1	2	3	4	5
4. It is important to present a lot of facts to students so that they know what they have to learn for this subject.	1	2	3	4	5
5. I set aside some teaching time so that the students can discuss, among themselves, key concepts and ideas in this subject.	1	2	3	4	5
6. In this subject I concentrate on covering the information that might be available from key texts and readings.	1	2	3	4	5
7. I encourage students to restructure their existing knowledge in terms of the new way of thinking about the subject that they will develop.	1	2	3	4	5
8. In teaching sessions for this subject, I deliberately provoke debate and discussion.	1	2	3	4	5
9. I structure my teaching in this subject to help students to pass the formal assessment items.	1	2	3	4	5
10. I think an important reason for running teaching sessions in this subject is to give students a good set of notes.	1	2	3	4	5
11. In this subject, I provide the students with the information they will need to pass the formal assessments.	1	2	3	4	5
12. I should know the answers to any questions that students may put to me during this subject.	1	2	3	4	5
13. I make available opportunities for students in this subject to discuss their changing understanding of the subject.	1	2	3	4	5
14. It is better for students in this subject to generate their own notes rather than copy mine.	1	2	3	4	5

- | | | | | | |
|---|---|---|---|---|---|
| 15. A lot of teaching time in this subject should be used to question students' ideas. | 1 | 2 | 3 | 4 | 5 |
| 16. In this subject my teaching focuses on the good presentation of information to students. | 1 | 2 | 3 | 4 | 5 |
| 17. I see teaching as helping students develop new ways of thinking in this subject. | 1 | 2 | 3 | 4 | 5 |
| 18. In teaching this subject it is important for me to monitor students' changed understanding of the subject matter. | 1 | 2 | 3 | 4 | 5 |
| 19. My teaching in this subject focuses on delivering what I know to the students. | 1 | 2 | 3 | 4 | 5 |
| 20. Teaching in this subject should help students question their own understanding of the subject matter. | 1 | 2 | 3 | 4 | 5 |
| 21. Teaching in this subject should include helping students find their own learning resources. | 1 | 2 | 3 | 4 | 5 |
| 22. I present material to enable students to build up an information base in this subject. | 1 | 2 | 3 | 4 | 5 |

For items 23-29, please indicate the selection that best describes you:

- | | |
|------------------------|--|
| 23. Gender | Male = 1
Female = 2 |
| 24. Age Group | 18 -25 = 1
26-35 = 2
36-45= 3
46-55 = 4
56-65 = 5
66+ = 6 |
| 25. Ethnicity | Asian =0
Black = 1
Hispanic = 2
White = 3
Other = 4 |
| 26. Level of Education | Bachelor's = 1
Master's = 2
Doctorate = 3 |
| 27. Discipline | Humanities = 1
Communications = 2
Health Sciences = 3
Business and IT = 4
Architecture and Engineering = 5
Fine Arts = 6
Math = 7
Library Services = 8
Foreign Language = 9
Behavioural and Social Science = 10 |

28. Year in TLA

Class of 2011 = 1
Class of 2012 = 2
Class of 2013 = 3

29. Number of professional development courses aimed at curriculum, instruction, pedagogy, and/or teaching methods completed

None = 1	16-19 = 6
1-3 = 2	20-24 = 7
4-6 = 3	25-30 = 8
7-10 = 4	31+ = 9
11-15 = 5	

ATI-R Prosser/Trigwell, 2005

APPENDIX B: EMAIL INVITATION TO PARTICIPANTS

From: Christina Hardin
Sent: Monday, September 13, 2010 9:37 AM
To: Christina Hardin
Cc: Celine Kavalec-Miller
Subject: Tenure-Track TLA Class of 2011, 2012, & 2013
Attachments: Informed Consent_9.13.10.pdf

September 13, 2010

Dear Tenure-Track faculty member,

Most of you know me, but for those who don't... My name is Christina Hardin, a graduate student at the University of Central Florida, and English Instructor here at Valencia (Osceola). I am working to understand the influence that professional development courses, which focus on teaching and instruction methods (pedagogy), have on community college instructors' approaches to teaching. As part of my dissertation work I am asking you to allow me to use your answers from an on-line survey developed to measure the degree to which teachers approach the teaching and learning context within a specific context, subject, or course. You have been identified as a potential participant in this study because of your participation in the Teaching and Learning Academy. I know your time is valuable and want you to know I truly appreciate your taking the time to complete the survey.

Please read the attached Informed Consent document carefully (below and attached) before you decide to participate in this research study.

If you agree to participate, you will simply complete the Zommerang questionnaire within the next fourteen (14) days. Survey completion should take no more than twenty minutes. By completing the survey, you have agreed to allow me to use your **anonymous responses** to the survey as part of my dissertation study data.

Click on "Take Survey" if you are willing to participate.

[Take Survey!](#)

Thank you!
Christina Hardin, TLA, Class of 2011
Professor of English, Osceola Campus

Ext. 4293

MC: 6-8

Chardin1@valenciacc.edu

APPENDIX C: INFORMED CONSENT

Participant Informed Consent Form

September 13, 2010

Dear Instructor:

Please read this consent document carefully before you decide to participate in this research study.

Christina Hardin, a graduate student at the University of Central Florida, is working to understand the influence that professional development courses, which focus on teaching and instruction methods (pedagogy), have on community college instructors' approaches to teaching. As part of the dissertation study I am conducting, I am asking you to allow me to use your answers from an on-line questionnaire. If you agree to participate, you will simply complete the questionnaire as soon as possible upon receiving the link. Participation should take about twenty minutes.

Your identity will be kept anonymous. No names or identifying information will be collected for this study. You must be 18 years of age or older to participate in this study. Your participation in this study is voluntary. There is no penalty for not participating. All information is subject to the Family Educational Rights and Privacy Act (FERPA) of 1974, which is designated to protect the privacy of educational records.

Participation in this study is voluntary, and there are no anticipated risks, compensation, or other direct benefits to you as a participant in this study.

If you have any questions about this research project, please contact Christina Hardin at (407) 582-4293, or via e-mail at chardin1@valenciacollege.edu, or my dissertation chair, Dr. Michele G. Gill, Associate Professor, Dept. of Educational Studies: PO Box 161250, Orlando, FL 32816-1250, University of Central Florida. Email: mgill@mail.ucf.edu

This study has been reviewed and approved by the UCF Institutional Review Board and the Valencia Community College IRB. Research at the University of Central Florida involving human participants is carried out under the oversight of the Institutional Review Board (IRB). Questions or concerns about research participants' rights may be directed to the UCF IRB office, University of Central Florida, Office of Research & Commercialization, 12201 Research Parkway, Suite 501, Orlando, FL 32826-3246, or by campus mail 32816-0150. The hours of operation are 8:00 am until 5:00 pm, Monday through Friday, except on University of Central Florida official holidays. The telephone numbers are (407) 882-2276 and (407) 823-2901.

APPENDIX D: VCC IRB APPROVAL

VALENCIA COMMUNITY COLLEGE
Human Research Protection (HRP) Institutional Review Board (IRB)

IRB Determination Form

Title of Research Protocol: An Examination of Community College Instructors' Beliefs and Teaching Practices

Principal Investigator (PI): Christina Hardin

Date Received by IRB Chair: 07/22/10 (original application); 08/20/10 (additional information)

IRB Number: 11-002

Based on the IRB Protocol Initial Submission Form (or, as appropriate, the IRB Continuing Review/Termination Form or the IRB Addendum/Modification Form) submitted by the Principal Investigator and for the project identified above, the following determination has been made by the Valencia IRB:

- The research is exempt from IRB review. Exemption category: 2
- The research is eligible for expedited review and has been approved.
- The research is eligible for expedited review but requires modifications and re-submission before approval can be given.
- The research is subject to full review and will be discussed at the next IRB meeting, currently scheduled for _____ (date).
- The research has been subjected to full review and has been approved.
- The research has been subjected to full review and has been disapproved.

Period of Approval: 08/24/10 to 05/01/11
(cannot be retroactive)

Exemption from Valencia IRB review does not exempt the PI or Co-PI from compliance with all applicable institutional, Federal, State, and local rules, regulations, policies, and procedures.

Although the IRB has determined that this application is exempt from IRB review, the Principal Investigator is encouraged to read, understand, and apply the attached Investigator Responsibilities document, which is required of Principal Investigators whose research protocols are approved under the Valencia IRB full or expedited review process.

If you have any remaining questions about Valencia's IRB process, contact the IRB Chair at irb@valenciacc.edu.

Elizabeth J. Gombash
Signature of IRB Chair or Designated Representative

08/24/10
Date

C: IRB File, IRB Members, PI Supervisor/Administrator

Participant Informed Consent Form

August 24, 2010

Dear Instructor:

Please read this consent document carefully before you decide to participate in this research study.

Christina Hardin, a graduate student at the University of Central Florida, is working to understand the influence that professional development courses, which focus on teaching and instruction methods (pedagogy), have on community college instructors' approaches to teaching. As part of the dissertation study I am conducting, I am asking you to allow me to use your answers from an on-line questionnaire. If you agree to participate, you will simply complete the questionnaire as soon as possible upon receiving the link. Participation should take about twenty minutes.

Your identity will be kept anonymous. No names or identifying information will be collected for this study. You must be 18 years of age or older to participate in this study. Your participation in this study is voluntary. There is no penalty for not participating. All information is subject to the Family Educational Rights and Privacy Act (FERPA) of 1974, which is designated to protect the privacy of educational records.

Participation in this study is voluntary, and there are no anticipated risks, compensation, or other direct benefits to you as a participant in this study.

If you have any questions about this research project, please contact Christina Hardin at (407) 582-4293, or via e-mail at chardin1@valenciaccc.edu, or my dissertation chair, Dr. Michele G. Gill, Associate Professor, Dept. of Educational Studies: PO Box 161250, Orlando, FL 32816-1250, University of Central Florida. Email: mgill@mail.ucf.edu

This study has been reviewed and approved by the UCF Institutional Review Board. Research at the University of Central Florida involving human participants is carried out under the oversight of the Institutional Review Board (IRB). Questions or concerns about research participants' rights may be directed to the UCF IRB office, University of Central Florida, Office of Research & Commercialization, 12201 Research Parkway, Suite 501, Orlando, FL 32826-3246, or by campus mail 32816-0150. The hours of operation are 8:00 am until 5:00 pm, Monday through Friday, except on University of Central Florida official holidays. The telephone numbers are (407) 882-2276 and (407) 823-2901.

I am at least 18 years of age and completing this survey constitutes my informed consent.

Thank you!

VALENCIA IRB:
Application # 11-002
Determination Exempt 2
Period 08/24/10 to 05/01/11



UNIVERSITY OF CENTRAL FLORIDA

APPENDIX E: UCF IRB APPROVAL



University of Central Florida Institutional Review Board
Office of Research & Commercialization
12201 Research Parkway, Suite 501
Orlando, Florida 32826-3246
Telephone: 407-823-2901 or 407-882-2276
www.research.ucf.edu/compliance/irb.html

Approval of Exempt Human Research

From: UCF Institutional Review Board #1
FWA00000351, IRB00001138

To: Christina Hardin

Date: September 02, 2010

Dear Researcher:

On 9/2/2010, the IRB approved the following activity as human participant research that is exempt from regulation:

Type of Review: Exempt Determination
Project Title: The Born Versus Made Debate: An Examination of Community College Instructors' Beliefs and Teaching Practices
Investigator: Christina Hardin
IRB Number: SBE-10-07097
Funding Agency:
Grant Title:
Research ID: N/A

This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these changes affect the exempt status of the human research, please contact the IRB. When you have completed your research, please submit a Study Closure request in iRIS so that IRB records will be accurate.

In the conduct of this research, you are responsible to follow the requirements of the Investigator Manual.

On behalf of Joseph Bielitzki, DVM, UCF IRB Chair, this letter is signed by:

Signature applied by Joanne Muratori on 09/02/2010 09:55:45 AM EDT

A handwritten signature in black ink that reads 'Joanne Muratori'.

IRB Coordinator

APPENDIX F: INVENTORY PERMISSION

From: **Keith Trigwell** (keith.trigwell@sydney.edu.au)
Sent: Thu 7/08/10 3:08 AM
To: Christina Hardin (christina_hardin_ucf@knights.ucf.edu)

Christina, thanks for contacting me. Yes please go ahead and use it. We have some notes on the inventory, including the revisions made a few years ago. If you do not have them let me know. I am away from my office until next week, but I could send it then.

Keith Trigwell
Institute for Teaching & Learning
University of Sydney
+61293514572

On 07/07/2010, at 11:26 PM, "Christina Hardin" <christina_hardin_ucf@knights.ucf.edu> wrote:

Good morning,

My name is Christina Hardin. I am a graduate student at the University of Central Florida in Orlando, Florida. I am preparing to begin work on my dissertation work toward my EdD program in Curriculum and Instruction and would like to ask your permission to use the ATI in my study. The purpose of this study is to investigate the relationship between community college instructors' beliefs about teaching and learning and teacher education programs. Specifically, I want to investigate the possible relationships of professional development courses provided to tenure-track faculty and the influence that exposure to pedagogical training has on faculty members' beliefs and approaches to teaching at the community college level.

Thank you for your consideration. I am happy to provide more detail if needed.

Christina Hardin
Professor of English
Valenica Community College, Orlando, FL
chardin_hardin_ucf@knights.ucf.edu
(407) 582-4293

Approaches to Teaching Inventory-R (NOTES)

The Approaches to Teaching Inventory-Revised (ATI-R) has two scales:
Information transfer/Teacher-focused scale (ITTF)
Conceptual Change/Student-focused scale (CCSF)

ITTF Items 1, 2, 4, 6, 9, 10, 11, 12, 16, 19, 22
CCSF items 3, 5, 7, 8, 13, 14, 15, 17, 18, 20, 21

Scoring is based on the mean numeric response (1-5) for each item in the scale

We have not published norms, nor will we, as we have gone to some lengths in writing on the research behind this inventory, that responses to it are relational and are specific to the context in which they are collected. Teachers who adopt one approach in one context may not adopt the same one in a different context. Our main use of the Inventory has been as a source of data for analysis of associations within a specific context. For example the associations between approach to teaching and perceptions of leadership in departments, or relations between approach to teaching and student approaches to learning.

Permission to use this Inventory is given, provided:

- a) that its source is acknowledged in all publications (ATI)* (ATI-R)**
- b) that users notify Keith Trigwell of their intention to use the inventory, and
- c) that once data have been collected and used as intended that the raw results on the inventory items are available for the use of Michael Prosser and/or Keith Trigwell.

[Michael Prosser and Keith Trigwell, 2004]

References on the ATI

**Trigwell, K., Prosser, M. & Ginns, P. (2005) Phenomenographic pedagogy and a revised Approaches to Teaching Inventory, *Higher Education Research and Development*, 24 (4) 349-360.

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*Trigwell, K. and Prosser, M. (2004). Development and use of the Approaches to Teaching Inventory, *Educational Psychology Review*, 16(4), 409-424.

Prosser, M. and Trigwell, K. (1999). *Understanding Learning and Teaching: The experience in higher education*. SRHE and Open University Press: Buckingham.

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Note that this version of the ATI has been expanded to test new items and modified to accommodate more flexible learning environments than those from which the ATI was developed. The original version is available in Prosser and Trigwell (1999) and the last 16-item version is available from Trigwell, K. and Prosser, M. (2004).

Keith Trigwell
Institute for Teaching and Learning
University of Sydney
Sydney 2006
Australia
e-mail: keith.trigwell@sydney.edu.au
January 2009

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