

Preparing Future Faculty Programs and Boyer's Four Domains of Scholarship

by

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Abstract

Austin and McDainels (2006) revealed that American universities and colleges should increase the interest in preparing future faculty using the four domains of scholarship among doctoral students so that students can learn broad scholarly activities and be ready for the array of expectations they may face in future careers. However, doctoral education may not provide students a comprehensive understanding of what the faculty career entails or an adequate understanding of the range of higher education types in which they might work. Therefore, preparation through Preparing Future Faculty (PFF) programs will help students create realistic expectations and assist students in finding future institutional positions with reduced conflict and confusion (Golde, 2004; Goldsmith, Haviland, Dailey, & Wiley, 2004).

Among the previous studies regarding PFF programs and preparing doctoral students for academic career paths, few used a clear definition of faculty roles to analyze and design academic career preparation programs. There was also a lack of literature examining PFF preparations by comparing current and aspiring faculty members' perceptions in the importance of faculty roles in order to identify realistic worklife guidelines for future faculty. As a result, this study sought to determine how the PFF graduates perceived their preparation for faculty roles and responsibilities in terms of Boyer's (1990) four domains of scholarship, as well as the importance of those faculty tasks in their current or future faculty positions. It explored whether there were different perceptions in the importance of faculty roles between current and aspiring faculty members. Finally, selected factors, such as work status, type of institution, discipline, and

ethnicity were considered in this study to identify any differences in the graduates' perceptions of preparation and importance of faculty roles in the PFF program.

71 program graduates who participated from 2004 to 2012 completed the survey and 62 of them who were current and aspiring faculty members were used and the responses were analyzed by using qualitative and quantitative methods. According to the findings of this study, this PFF program benefited doctoral students in terms of understanding of faculty roles, realizing culture of the professoriate and diverse institutions, enhancing abilities to compete in the job market, and assisting in job application package preparation and job search and interview process. There were no significant differences in perceptions of the PFF preparation for faculty roles between student and faculty groups, and the importance of faculty roles was affected by institution type, nationality and ethnicity. A developmental model of PFF programs with main contents and valuable activities was developed based on the findings in this research study and Boyer's four domains of scholarship.

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Chapter 1: Introduction

Introduction

For more than a century, doctoral education in the United States had been considered important in preparing scholars to perform academic research (Campbell, Fuller, & Patrick, 2005). Students in doctoral programs were assumed to work under the supervision of their advisors with the goal of becoming increasingly independent scholars who were able to carry out the intricacies of scientific research (Golde & Dore, 2001). Although this model of doctoral education continues to be the norm, recent studies showed that doctoral studies no longer systematically and developmentally prepares students for the academic career goal in a rapidly changing college environment (Austin, Nyquist, & Sprague, 2004; Campbell, Fuller, & Patrick, 2005; Nyquist & Wulff, 2000; Nerad, 2002; Wulff).

Among today's doctoral students, a large number of those students who pursue a doctoral degree expect to be a future faculty member (Gaff & Pruitt-Logan, 2002). According to Golde and Dore (2001), sixty-three percent of the graduate students said they were interested in becoming a faculty member and another twenty-four percent said maybe they would. However, only ten percent of these students found jobs in colleges and universities where roles and responsibilities as a faculty member are similar to the academic professors in their doctoral institutions (Gaff & Lambert, 1996). Despite these appointments varying from five to twenty percent depending on the discipline (Golde & Dore, 2001), a great number of graduates who sought and accepted academic positions in different types of higher education

institutions often felt unprepared for the roles and expectations they faced (Austin, 2002; Meacham, 2002). The current academic employers look for candidates with not only outstanding research credentials, but also excellent teaching experience and comprehensive philosophy on education (Montell, 2003). Meanwhile, research training in higher education has not been sufficient to fulfill the multiple roles aspiring faculty must assume, especially for the first academic appointment (Austin, 2002; Purcell, 2007). The 19th and 20th century models of doctoral education are “inadequate for the challenges confronting the professoriate of the 21st century” (Gaff, Pruitt-Logan, & Weibl, 2000, p. 3), and Lovett (1993) stated that “the reinvention of faculty roles and responsibilities to meet society’s changing needs has been a constant theme in American higher education” (p. 26). Therefore, improving graduate education and specifically, strengthening the preparation of the faculty roles and responsibilities of the future has become a significant issue that requires the best efforts of universities and educators (Austin & Wulff, 2004).

Golde and Dore (2001) suggested that a range of experiences beyond the traditional academic training would help students prepare for faculty roles and meet the institutional expectations. Preparing Future Faculty Programs (PFF) are one of the examples (Gaff, Pruitt-Logan, & Weibl, 2000; Pruitt-Logan, & Gaff, 2004). PFF is a national program that offers “a new vision and a broader education for doctoral students who seek a career in the professoriate” (Pruitt-Logan, & Gaff, 2004, p. 177). It is a key strategy in institutional and national efforts to encourage change in the traditional research model in current American higher education (Pruitt-Logan & Gaff, 2004). One core feature of this program is to address

the full scope of faculty roles and responsibilities at different types of higher education institutions (Gaff & Pruitt-Logan, 2002).

Then, what are the roles and responsibilities prospective faculty members should assume? Boyer (1990) suggested that the traditional research model in higher American education doesn't train students with a full range of faculty roles, and he questioned the position that faculty in all types of institutions must be research scholars, and posited that scholarship in the work of the professoriate should consist of four domains: application, integration, teaching, as well as the discovery of knowledge through research. The scholarship of application (also known as the scholarship of engagement or outreach scholarship) indicates "the use of a scholar's disciplinary knowledge to address important individual, institutional, and societal problems" (Austin & McDaniels, 2006, p. 52); the scholarship of integration is described as the connections within and among disciplines and communication to the public; the scholarship of discovery is akin to traditional research; and the scholarship of teaching is described as "the development and improvement of pedagogical practices" (Braxton, Luckey, & Helland, 2002, p. 106).

Additionally, Boyer (1990) pointed out the domains of scholarship should be prioritized differently according to the type of institution. For research institutions, scholarship of discovery is the first priority; for teaching-intensive institutions, scholarship of teaching, integration, and application can be primary; and for religious institutions, scholarship of integration has a more important focus than the other three domains. These institutional priorities form the concrete expectations that academic employers seek from their future faculty. For instance, research institutions require substantial research, external

grantsmanship and publications; faculty in liberal arts colleges should be skillful in teaching general education courses and in working across disciplines (Nyquist, Woodford, & Rogers, 2004). Furthermore, different academic disciplines and individual characteristics may influence faculty engagement in the four domains of scholarship (Braxton, Luckey, & Helland, 2002). Some instances show that academic sociologists and academic historians exhibit higher publication levels than colleagues in biology and chemistry in terms of the scholarship of integration; male faculty tend to publish more within three of the four domains of scholarship (application, discovery, and integration) than female faculty; and African American academics tend to produce more integration-focused unpublished scholarly outcomes such as talks and lectures than their Caucasian or Asian faculty counterparts (Braxton, Luckey & Helland, 2002). As a result, preparation for future faculty roles and responsibilities might be affected by the variety of institutional types, disciplines, and individual characteristics.

For future faculty members, American universities and colleges should improve the process of preparing them for the future roles using the four domains of scholarship (Austin & McDaniels, 2006). Graduate faculty should be ethically responsible and expose doctoral students to a variety of scholarship avenues in order to meet the expectations of the academic marketplace (Nyquist, Woodford, & Rogers, 2004). Doctoral students, should also understand each domain of scholarship separately and also how one domain relates, communicates, and benefits from another in order to identify “a map of the broad territory of scholarly activity and recognize the legitimacy of different kinds of intellectual contributions”

so that they will be ready for the array of expectations they may face in their careers (Austin & McDaniels, 2006, p. 53).

Doctoral education does not usually provide this broad preparation for students to recognize and experience faculty roles and responsibilities across Boyer's four domains of scholarship. According to Austin and McDaniels (2006), doctoral students typically does not complete their degrees with "a comprehensive understanding of what the faculty career entails or an adequate understanding of the history of higher education, the role of higher education in society, and the range of higher education types in which they might work" (p. 54). Doctoral education emphasizes the scholarship of discovery, but emphasizes the scholarship of teaching less, and doctoral students have a limited understanding of the meaning of application and integration (Austin, 2002; Wulff, Austin, Nyquist, & Sprague, 2004). Moreover, doctoral education provides little opportunity to explore "the mission of different institutional types and examine the implications of institutional type for engaging in the various forms of scholarship" and to understand "how the various forms of scholarship have played a role in the particular missions and societal contributions of each institutional type" (Austin & McDaniels, 2006, p. 55). To contribute to changing current doctoral education, preparation using the PFF program will help students create realistic expectations and enable students to fit into future institutional positions with less conflict and confusion (Golde, 2004; Goldsmith, Haviland, Dailey, & Wiley, 2004).

Based on the different demands of future faculty preparation at a variety of higher education institutions, PFF is designed using three loci: the university, because it is for all graduate students to learn general and appropriate knowledge; the department, because it is

for students in each particular discipline to learn; and the partner institution, because students will learn from an institutional context (Pruit-Logan & Gaff, 2004). The activities in these three forms of PFF typically include “seminars about faculty careers and pedagogy in postsecondary education, enhanced mentoring for teaching and service roles, interaction with faculty at multiple postsecondary institutions, and guidance in career choice and job search” (Goldsmith, Haviland, Dailey, & Wiley, 2004, p. 3). However, the individual program may add new and more valuable activities for their own purposes after examining the current student preparation by applying the conceptual framework for doctoral student professional development through the use of the four domains of scholarship (Austin & McDaniels, 2006).

This study investigated a PFF program developed at a southeastern university in 2004. PFF at this institution is a one-year, course-based preparation program for doctoral students from all disciplines to learn faculty roles and worklife realities so that they may be ready for future academic careers (Biggio Center for Enhancement of Teaching and Learning, 2012). The professional activities assisting the students’ preparations are varied, and include peer group discussion, micro-teaching experience, seminars, and guest speakers.

Statement of Problem

Among the previous studies focusing on Preparing Future Faculty (PFF) programs and their preparation for doctoral students’ academic career paths (DeNeef, 2002; Golde & Dore, 2004; Fagen & Wells, 2004), few used a clear definition of faculty roles to analyze academic career preparation. Austin and McDaniels (2006) have stressed the use of Boyer’s four domains of scholarship in future faculty preparation programs. Feldman (1981) also posited that successful resolution of role definition resulted in higher levels of preparation for

future careers. Additionally, there is a lack of research literature examining the PFF preparation programs from the perspectives of current and former faculty members who graduate from the program. This study was recommended by Nerad, Aanerud, and Cerny (2004), who suggested that it is necessary to develop a process for program evaluations by comparing the perspectives between current and aspiring faculty members who graduate from PFF programs in terms of importance of faculty roles.

Conceptual Framework

Based on Boyer's (1990) four domains of scholarship, Austin and McDaniels (2006) presented a conceptual approach to prepare doctoral students to work in an academic career. This framework (Figure 1) takes into account "preparation strategies (such as modeling, seminars, conversations, internships, certificates), the scholarly domains within which doctoral students must learn to work and the stakeholders responsible for providing the preparation" (p. 58), and can be used as a tool for conceptualizing "what strategies could be used to prepare doctoral students to work in the four domains of scholarship, which stakeholders might take responsibility for offering these strategies, and what domains of scholarship each strategy might address" (Austin & McDaniels, 2006, p. 62). By highlighting the three components: domains of scholarship, stakeholders, and preparation strategies, this framework can be used as a guide to assess what is currently being done to help doctoral students prepare for the academic positions in the four domains and to suggest possibilities for expanding doctoral preparation (Austin & McDaniels, 2006). Particularly, this framework can be used to conduct a program audit by using surveys, focus groups, and interviews to decide what professional activities are available to support participants' academic career

development for each domain of scholarship, and identify gaps between PFF preparations and students' expectations for their faculty careers.

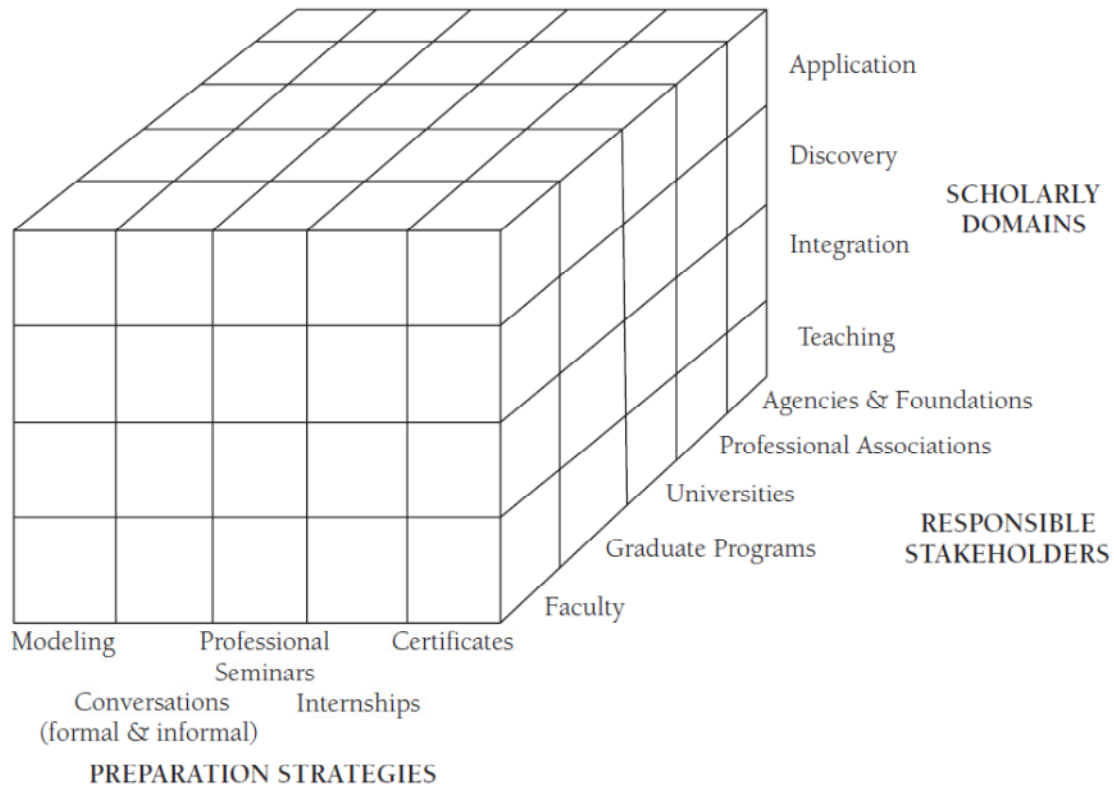


Figure 1. Framework for Doctoral Student Professional Development in the Domains of Scholarship. Adapted from “Using Doctoral Education to Prepare Faculty to Work within Boyer’s Four Domains of Scholarship” by A. E. Austin, and M. McDaniels, 2006, *New Directions for Institutional Research*, 129, p. 59. Copyright 2006 by Wiley InterScience.

Purpose of the Study

The purpose of this study was to examine a Preparing Future Faculty (PFF) program in relation to Boyer’s (1990) four domains of scholarship. Participants were from a Southeastern U.S. four-year public university, as well as were preparing to serve in academic faculty roles in the future. The importance of these four scholarships in faculty positions as well as participants’ demographic factors, such as work status, institution type, gender, age, ethnicity, nationality and discipline, which might affect PFF graduates’ perceptions in

preparation and importance of faculty roles were also discussed. Furthermore, the study sought to identify a model to develop future PFF programs based on a clear definition of faculty roles and to fill the gaps between the aspiring faculty members' expectations for future faculty careers and the realistic day-to-day worklife across the four domains (Golde, 2004).

Research Questions

The following research questions were used in this study:

1. How do graduates perceive the preparation they receive in the PFF program and the importance of faculty roles for their current or future faculty positions in terms of the scholarship of teaching?
2. How do graduates perceive the preparation they receive in the PFF program and the importance of faculty roles for their current or future faculty positions in terms of the scholarship of application?
3. How do graduates perceive the preparation they receive in the PFF program and the importance of faculty roles for their current or future faculty positions in terms of the scholarship of integration?
4. How do graduates perceive the preparation they receive in the PFF program and the importance of faculty roles for their current or future faculty positions in terms of the scholarship of discovery?
5. What is the effect of the demographic variables on the perceptions of preparation and importance of faculty roles for faculty positions in the scholarship as related to teaching, application, integration, and discovery?

Significance of the Study

For PFF Participants

The goal of the PFF program is to educate doctoral students who aspire to be competent in the range of faculty roles and responsibilities in an academic career (Pruitt-Logan, & Gaff, 2004). This study seeks to define faculty roles and responsibilities based on Boyer (1990)'s four domains of scholarship. The study informs future PFF participants in understanding faculty roles which may be essential for those students to successfully enter into an academic career with higher satisfaction, better job performance, and less turnover (Olsen & Crawford, 1998). According to Golde (2004), doctoral students often hold idealized and unrealistic views of faculty life when entering graduate school and there is a discrepancy between the aspects of faculty roles that students reported being interested in and the ones that faculty members reported being important for their work (Braxton, J. M, Luckey, W. & Helland, P., 2002; Glode, & Dore, 2004). The results of this study should assist future PFF participants in creating realistic goals for their academic careers by analyzing the comparison between current and aspiring faculty members. It will also identify beneficial activities to prepare for faculty roles in each domain of scholarship.

For PFF Programs

This study assists in reducing the gap of relevant research studies related to PFF programs and it is also the first practical application by using Boyer's theory in PFF programs. What is more, this study might be replicated in the future and integrated with this study's results contributing to a more comprehensive evaluation tool for PFF programs. Findings from this study can be created as a developmental model in order to identify

domain-specific strategies to prepare faculty from different types of institutions, disciplines, and individual characteristics, as well as can be used as a guideline for PFF design based on a clear definition from Boyer.

For University and Doctoral Education

The Preparing Future Faculty programs can be a model to change traditionally research-oriented doctoral education in order to better develop students' competencies for 21st century society needs. The resulting PFF model for change "prescribes intervention at the graduate student level to improve the anticipatory socialization of future faculty and thereby change the culture of preparation, redefine faculty work, and improve postsecondary education" (Goldsmith, Haviland, Dailey, & Wiley, 2004, p. 20). The national PFF program recognized that the program has advocated change for a decade and is concerned that it will either fade away or challenge traditional practices in graduate education (Goldsmith, Haviland, Dailey, & Wiley, 2004). Hopefully, the results of this study will provide support to address these questions.

Limitations

This study had several limitations. The first limitation was that the former PFF participants in the sampling population were individuals who had been successful in securing academic employment after they graduated (DeNeef, 2002). Although this study concluded with important evidence for PFF students' future preparation, the voices of non-PFF and non-academic individuals were missing. The second limitation was that the sample selection was limited to a total of 119 PFF participants during the timeframe of 2004-2012. Thirdly, the results may not be representative of PFF students in other universities since the sample for

this study was obtained from a university-wide PFF program at one public university in the southeastern United States. Finally, the low internal consistency for the importance of faculty roles as related to teaching domain should be redesigned for further research studies.

Assumptions

The following assumptions were made for the purpose of this study.

1. PFF alumni who attended the PFF program expected to pursue a future faculty position in different types of institutions after graduation.
2. The PFF program used a similar structure and activities to teach all PFF students across the study's timespan.
3. Academic characteristics of the students varied such as work status, type of institutions, age, gender, ethnicity, academic discipline and nationality.
4. Student career expectations of the students were different based on the institutional types such as research university, comprehensive university and liberal arts colleges.

Definitions

The following terms used with specific definition were vital for this study.

1. *Aspiring faculty members*—PFF graduates who are still doctoral students who expect to be faculty members in the future.
2. *Doctoral Education*—Indicates the entire doctoral education system in this study rather than specific programs.
3. *Four domains of scholarship*—The more realistic definition of the work of faculty. They are: the scholarship of discovery, the scholarship of integration, the scholarship of application, and the scholarship of teaching (Boyer, 1990).

4. *PFF—Preparing Future Program*. A national program that offers a new vision and a broader education for doctoral students who seek a career in the professoriate (Gaff, Pruitt-Logan, & Weibl, 2002). The PFF program at the research university—a university-wide program for students from all disciplines to learn the faculty roles and worklife by using various professional activities. It is a one-year course-based program supported by the Graduate School and the Center of for the Enhancement of Teaching and Learning.
5. *Scholarship of application*—Engagement as a scholar in universities and colleges; applying knowledge to solve the consequential problems that will help the individual’ and the institution’s development (Boyer, 1990). Although Boyer gave the scholarship of application a new name, “the scholarship of engagement”, in 1996, this study uses the scholarship of application in order to avoid confusion (Braxton, Luckey & Helland, 2002, p. 27).
6. *Scholarship of discovery*—Scholarly research that “contributes not only to the stock of human knowledge but also to the intellectual climate of a college or university” (Boyer, 1990, p. 17).
7. *Scholarship of integration*—“Making connections across the disciplines, placing the specialties in larger context, illuminating data in a revealing way, and often educating non-specialists” (Boyer, 1990, p. 18).
8. *Scholarship of teaching*—Educating future scholars by developing and improving the pedagogical practices in universities and colleges (Boyer, 1990; Braxton, Luckey, & Helland, 2002).

Summary

This chapter provided a brief background on the currently research-centered graduate education system in the United States, pointed out the problems met by doctoral students who pursue future academic careers, and explained the use of Preparing Future Faculty Programs (PFF) as a tool to solve these problems. With the exploration of Boyer's four domains of scholarship (1990) and Austin and McDaniels' (2006) conceptual framework for doctoral students' faculty career development, this chapter also clarified that this study focused on one specific PFF program at one southeastern public university to find out what the professional activities of preparation were and which ones were more valuable for students' readiness for academic careers in terms of the four roles of scholarship. Integrating the perceptions of former participants who had been working in faculty positions, this study sought to provide more realistic guidance for current and future doctoral students participating in this program. In this chapter the purpose, research questions, significance, limitations, assumptions, and definitions of this study were presented.

Organization of the Study

The study is organized in five chapters. The format of the study is as follows: Chapter 1 introduces the study and its problem, purpose, research questions, significance, limitations, assumptions, and definitions of terms. Chapter 2 includes the literature review on the problems of current graduate education in terms of faculty career preparation, the history of both national PFF and the specific PFF programs, and Boyer's (1990) four domains of scholarship. Also, this chapter integrates the four domains separately with the PFF program in order to define the PFF preparation for each domain based on the related studies. Chapter 3

consists of the procedures, data collection, results, and data analysis. Chapter 4 presents the findings of this study. The summary of the study, conclusions, implications and recommendations for further practice and research are concluded in Chapter 5.

Chapter 2: Literature Review

Introduction

Doctoral education in the United States has well known globally for generating knowledge and preparing disciplinary stewards who “understand what is known and discover what is yet unknown” (Shulman, 2008, p. ix). However, more and more educators, over the past two decades, pointed out that the traditional norms in doctoral education need to be revised, rethought, reexamined, and reassessed (Nyquist, 2002). One emergent reform is to better prepare doctoral students for future faculty careers (Anderson & Anderson, 2012; Austin, 2002; Bieber & Worley, 2006). While traditional doctoral education primarily focuses on producing researchers, several authors have suggested that graduate education should train aspiring faculty members for a broader range of intellectual work including application, discovery, integration, and teaching (Austin & McDaniels, 2006; Boyer, 1990; Braxton & Hargens, 2002).

According to Walker, Golde, Jones, Bueschel, & Hutchings (2008), approximately half of 43,000 students who received doctoral degrees from over 400 universities in 2008 pursued faculty positions at colleges or universities, and most students understood and learned about the professoriate by relying on observation of their professors’ behaviors. Yet, the reality is that there are few openings available in the colleges or universities where faculty responsibilities would be exactly the same as their graduate professors’. A large number of Ph.D.s will work for colleges or universities where there are different work expectations from

those at their doctoral institutions. Therefore, it is important that doctoral education to prepare aspiring faculty members for all roles and responsibilities of faculty, as well as help them understand faculty roles at various types of institutions (Sharp, 2003; Thomas, 1997).

Anderson and Anderson (2012), based on the concerns of doctoral education, proposed that preparation of future faculty “should be more intentional in terms of both planned educational experiences and socialization to values, norms, and expectations of the profession” and “teaching practices such as modeling, coaching, scaffolding, articulation, reflection, and promoting the transfer of learning” would be effective and helpful for future scholar training (p. 240). Preparing Future Faculty (PFF) program, as one of the most recognized initiatives, has developed models for linking students with faculty members, administrators, peers and other useful resources in a variety of higher education institutions in order to provide opportunities for doctoral students to more fully explore faculty roles and responsibilities (Austin, Campa, Pfund, Gillian-Daniel, Mathieu, & Stoddart, 2009; Gaff, Pruitt-Logan, & Weibl, 2000; Pruitt-Logan and Gaff, 2004).

Among the previous studies regarding PFF programs and preparing doctoral students for academic career paths, few used a clear definition of faculty roles to analyze and design academic career preparation programs. There was also a lack of literature examining PFF preparations by comparing current and aspiring faculty members’ perceptions in the importance of faculty roles in order to identify realistic worklife guidelines for future faculty. As a result, this study sought to determine how the PFF graduates perceived their preparation for faculty roles and responsibilities in terms of Boyer’s (1990) four domains of scholarship, as well as the importance of those faculty tasks in their current or future faculty positions. It

explored whether there were different perceptions in the importance of faculty roles between current and aspiring faculty members. Finally, selected factors, such as work status, type of institution, discipline, and ethnicity were considered in this study to identify any differences in the graduates' perceptions of preparation and importance of faculty roles in the PFF program.

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2. How do graduates perceive the preparation they receive in the PFF program and the importance of faculty roles for their current or future faculty positions in terms of the scholarship of application?
3. How do graduates perceive the preparation they receive in the PFF program and the importance of faculty roles for their current or future faculty positions in terms of the scholarship of integration?
4. How do graduates perceive the preparation they receive in the PFF program and the importance of faculty roles for their current or future faculty positions in terms of the scholarship of discovery?
5. What is the effect of the demographic variables on the perceptions of preparation and importance of faculty roles for faculty positions in the scholarship as related to teaching, application, integration, and discovery?

Professoriate Preparation in Higher Education

American universities and colleges, for hundreds of years, had stood the test of time as the most prestigious institutions where the best and brightest people in the world had gathered. It is no doubt that they had prepared and educated countless elites for a variety of careers which substantially contributed to the development of society. However, with the rapid growth of economies, dramatic shifts in political patterns, and abundant cultural change in the twenty-first century, universities and colleges are no longer flourishing as the worldwide example as they used to be in the middle decades of the twentieth century (Altbach, 1998). All these societal challenges stimulate universities to examine and improve

themselves in order to continually maintain the leadership position, as well as prompt a national call for academic reform in higher education (DePauw, 2003).

According to DePauw (2003), today's universities and colleges should seek motivation for providing quality education and to meet the needs of diverse student populations as lifelong learning institutions. Universities and colleges in the new era must (a) provide lifelong learning opportunities for students of all ages, (b) understand knowledge of information technology and advance knowledge through technology, (c) move from teaching paradigm to learning paradigm, (d) promote universities as learning institutions, and (e) accept the university's role in social responsibility and leadership (DePauw, 2003).

To respond to the same consideration, Altbach (1998) observed that the new reform in higher education should include four aspects of change: student body, professoriate, academic administration, and internationalization. Altbach (1998) identified that students should come from more diverse backgrounds, such as age, gender, social class, and culture, who are more concerned with "the usefulness of higher education in the employment market" (p. 74) and demand career-oriented courses for study. As the professional roles become various and vulnerable, the academic profession becomes more diverse, and faculty members no longer enjoy the power and prestige of the golden age. As the power of university administrators increases, faculty members see themselves more like administrators. In addition, knowledge reciprocates internationally and foreign students and scholars grow fast academically.

Under such significant challenges in the 21st century, universities need to be willing to "dance with change" (DePauw, 2003, p. 19). Dancing with change is the only way for

universities and colleges to survive over the long term. To dance with change, administrators who have a blueprint regarding the future of higher education and faculty members as key personnel teaching and affecting students directly and effectively will become the most important factor to implementing these changes in the academy. Faculty members should shape students' future careers and lives because it would reinforce the success of academic reform in higher education. Therefore, with the evolution of higher education, the roles and responsibilities of faculty members should be reconsidered as a primary and urgent task in order to respond to the new realities (DePauw, 2003; Thomas, 2003; Sorcinelli, 2007; Cariage-Lo, Dawkins, Enger, Schotter, & Spence, 2010).

For the past decades, being a faculty member indicated that there was more freedom to pursue professional interests (Thomas, 2003). Faculty members who accomplished the greatest research production in their fields were regarded as the best academic professionals (Krahenbuhl, 2003). Toward the end of the 20th century, the standard of a valued faculty member had changed. The new requirements of being a good faculty member began to "focus on the needs of institution rather than on the needs and narrow priorities of the academic disciplines" (Krahenbuhl, 2003, p. 26). According to Krahenbuhl (1998; 2003), faculty members in 21st century universities should become catalysts who integrate with others, help everyone around their universities be more productive, make work accessible to students, and apply research to the public. Thomas (2003) concluded three characteristics of successful faculty members based on Krahenbuhl (1998)'s statement: "(a) integrate discovery, learning, and engagement; (b) increase and maintain knowledge and technological aspects of their work; and (c) involve their students in all aspects of their professional lives" (p. 9).

With the extension of faculty roles and responsibilities, the demographics in the professoriate are also changing. When Austin (2002) was invited to speak at a College of Education and Human Development event in a major research university, she found that 40% of the faculty members at the college were new and 10,000 faculty members must be hired in the near future. Austin (2002) then revealed that this phenomenon is happening nationwide because a large group of current faculty members started their careers during the post-World War II expansion of higher education and will reach the retirement age soon. Several years later, Plater (2008) predicted 40-60% of current faculty members will be eligible for retirement in the next decade. Higher education in America, after so many years with few openings for new faculty, will enter a period that will employ new doctoral education program graduates. It is important that graduate students realize the various roles and responsibilities of faculty members so that they can make the best decision on whether or not to become academic professionals. Thus, the quality of higher education in the future depends on next-generation faculty members who are being educated in doctoral programs in U.S. universities today.

Doctoral Education and Professoriate Preparation

According to the results of the National Norms for Higher Education Research Institute Faculty Survey (2008), 71.5% of faculty members held doctoral degrees from all types of American higher education institutions and 4.6% of them were working on doctoral degrees. Besides full-time tenure track faculty members who must receive a Ph.D., the trend of obtaining doctoral degrees among faculty members is increasing in today's higher education institutions. Glode and Dore (2004) conducted a survey of doctoral education and

career preparation with 4,114 respondents who had studied in American higher education institutions. They found that 63% of respondents were interested in a faculty job sometime in their future career. Most importantly, 40-60% of the current faculty members will reach their retirement age in the next ten years (Gold & Dore, 2004). Today's doctoral students will eventually become tomorrow's faculty members. Doctoral education, as a result, should take this significant responsibility in universities to guide and prepare the next generation of faculty members for the sake of quality education (Austin & McDaniels, 2006; Austin & Wulff, 2004; Campbell, Fuller, & Patrick, 2005; DePauw, 2003; Gaff, 2002; Golde, 2004; Sharp, 2003).

The traditional doctoral degree system in the U.S. was based on Humboldt's 19th century principles and establishment of Ph.D. programs in Germany (Jamieson & Naidoo, 2007). Before that, American higher education focused on students building character and preparing for civic and religious leadership during colonial times, and adding service as a mission in order to serve and reshape the society between the 1850's and 1880's (Boyer, 1990). With the influence of German universities by the late nineteenth century, American higher education decided to offer Ph.D. degrees in the education system, which emphasized that research was the primary responsibility for doctoral candidates, as well as embracing the apprenticeship model that students were supposed to imitate skills and competences their advisors and mentors displayed (Jamieson & Naidoo, 2007; Taylor, 2012). This traditional model of doctoral education merely focuses on the production of individual knowledge (Jamieson & Naidoo, 2007).

However, changes in the culture of higher education require reform on the part of doctoral education in America (Campbell, Fuller, & Patrick, 2005; Nerad, 2002; Nyquist, 2002; Nyquist & Woodford, 2000; Plater, 2008; Rice, 2004). The most remarkable change in higher education in recent years is the variety and vulnerability of academic positions (Finkelstein & Schuster, 2006; Gappa, Austin, & Trice, 2007). According to Plater (2008), 30% of faculty positions in the academic workforce were tenure-ineligible full-time appointments, more than half of new full-time faculty positions were tenure-ineligible, and more than 40% in higher education were part-time positions. Although 63% of doctoral students surveyed indicated that they were interested in faculty positions and 54% reported that they had a strong preference to work in a major research university, the reality is that there are few openings available in research universities where those doctoral students were taught and trained as aspiring faculty (Austin, 2003; Gaff, 2002; Sharp, 2003; Thomas, 2003). In addition, different types of higher education institutions have their own expectations and emphases for new faculty members (Austin, 2003). Therefore, it requires doctoral programs to prepare aspiring faculty members for all roles and responsibilities of faculty, as well as helping them understand the faculty roles at varying types of institutions (Thomas, 1997; Sharp, 2003).

The other notable change in higher education impacting doctoral programs is the pressure from labor market for the need for faculty members (Austin, 2003; Austin & Wulff, 2004; Campbell, Fuller, & Patrick, 2005; Taylor, 2011). Academia is a major employer of aspiring faculty members with doctoral degrees (Adams, 2002; Henderson, Clarke, & Reynolds, 1996; Sanderson & Dugoni, 1999). Yet since the 1980s and 1990s, the job market

for hiring academic positions has been shrinking, while the number of doctoral students has been increasing (Austin & Wulff, 2004; Campbell, Fuller, & Patrick, 2005). At the same time, higher education employers are seeking individuals who are not only able to conduct research, but also able to teach, blend pure research with application, and engage with the academic, professional, and local community (Sharp, 2003; Thomas, 2003). According to Adams (2002), a number of research studies have documented that the academic responsibilities of aspiring faculty are becoming various and doctoral education should recognize the difference and modify their programs to address these new responsibilities of next-generation faculty members (Boice, 1992; Olsen, 1993; Olsen & Crawford, 1998; Sorcinelli, 1992; Tierney, 1997; Whitt, 1991). The traditional form of doctoral education was not “adequately fulfilling its responsibility to employers, not fully adapting to changing national needs, and not sufficiently preparing graduate students for the world in which they would work” (Austin & Wulff, 2004, p. 7). Due to the three-way mismatch that “career preparation in doctoral education matches neither the careers that students adopt after graduation nor the careers they would choose” (McCarty & Ortloff, 2004, p. 15), the new form of doctoral education must “match the needs and demands of the changing academy and broader society” (Nyquist, Austin, Sprague, & Wulff, 2001, p. 5) and prepare students for the future roles and responsibilities of faculty that the academic employers expect (DePauw, 2003; Golde & Dore, 2001). Table 1 represents the conflicts of doctoral education occurring in today’s higher education throughout the comparison of traditional form and proposed form of doctoral education in terms of purpose, enrollment, and training. From Nyquist and Woodford (2000),

those conflicts need to be of concern and discussed for the national agenda of doctoral education reform.

Table 1

Conflicting Views of Doctoral Education

Traditional form of doctoral education	Proposed form of doctoral education
Purpose	
PhD is a research certification.	PhD requires broader professional preparation.
PhD prepares students as academics.	PhD prepares students for a variety of career options.
Enrollment	
PhD programs need to be very selective.	PhD programs should admit all qualified applicants.
Need to decrease number of PhDs.	Need to increase the number of PhDs.
U.S. students should be privileged.	International students should be encouraged.
Training	
Best preparation is apprenticeship.	Other types of mentoring are needed.
Funding practices work well.	Funding practices need to change.
Current model attracts the “best and the brightest.”	Current model discourages the “best and the brightest.”

Note. Adapted from “Re-envisioning the Ph. D.: What Concerns Do We Have?” by J. Nyquist and B. J. Woodford, 2000, retrieved from <http://www.naufrp.org/pdf/Re-envisioning%20the%20PhD.pdf>. Copyright 2000 by the University of Washington.

To resolve these conflicts, the National Science Foundation issued a report regarding the changes in doctoral education and called for broad doctoral training where the research skills are still taught, but for a more collaborative and integrated environment. New doctoral programs are supposed to prepare doctoral students to “(a) do research in a field and laboratory setting that lacks expensive equipment; (b) teach beyond their narrow specialized area; and (c) serve the university, academic/professional groups, or the local community in appropriate ways” (Sharp, 2003, p. 83). In addition, another national call for improving doctoral education was the Responsive Ph.D. program, funded by the Woodrow Wilson

Fellowship Foundation in order to “promote the adoption of new paradigms in terms of interdisciplinary, scholarly and citizenship; new practices of professional development and pedagogical training; and new people who are diverse populations and diversifying the American intellect” (DePauw, 2003, p. 20). Austin (2002) also suggested “doctoral students must develop as researchers, as teachers, as engaged scholars, and as institutional/organizational citizens” (p. 7). Doctoral education plays one of the most important roles in assessing students’ abilities in mastering all these responsibilities and developing professional identities (Austin, 2002). Walker (2004), as the director of the Carnegie Initiative on the Doctorate, recommended that doctoral education should focus on preparation of doctoral students as stewards of the disciplines, which “are those responsible for preserving the essence of their fields while simultaneously directing a critical eye to the future and those to whom we entrust the vigor, quality, and integrity of the individual disciplines” (p. 239). Doctoral programs need to train students for “(a) generating new knowledge and defending knowledge claims against challenges and criticism, (b) conserving the most important ideas and findings that are legacies of past and current work, and (c) transforming knowledge, generated and conserved, into powerful pedagogies of engagement, understanding, and application” (DePauw, 2003, p. 21).

Therefore, a “predictable career path leading from graduate students to tenured full professor is no longer the norm” (Plater, 2008, p. 66). Doctoral students should be prepared for a full range of faculty roles and responsibilities in order to meet the needs of higher education in the 21st century. Although preparing students for broader faculty roles and responsibilities is only one of the important conflicts in today’s doctoral education,

professional educators in higher education and nationally-funded initiatives agreed that this professoriate preparation among doctoral students should be the primary focus toward examining and revising traditional doctoral education. This reform of doctoral education does not replace the traditional model, but expands it based on student needs and provides professional training in teaching, service, and research (Adams, 2002; Haviland, Goldsmith, & Dailey, 2004; McCarty & Ortloff, 2004).

Faculty Roles and Responsibilities in Professoriate Preparation

The most comprehensive survey in recent years regarding doctoral students' experiences and preparation for faculty careers is the Survey of Doctoral Education and Career Preparation which was conducted in the summer and fall of 1999 (Golde & Dore, 2004). In this study, 4,114 doctoral students from eleven disciplines at 27 universities responded to the questions in terms of their doctoral education experiences, expectations, and preparation for faculty careers (Golde & Dore, 2004; Golde, 2004). According to the results, 60.9 percent of the students reported that they were interested in faculty careers, from a high of 88.7 percent in philosophy to a low of 36.3 percent in chemistry. However, 35.4 percent of the students admitted that their goals of being faculty members had declined through their study in doctoral programs (Golde & Dore, 2004). One major reason for this phenomenon was that preparation from current doctoral programs cannot match the student expectations for preparing faculty roles (Golde, 2004) (See Table 2).

All eleven faculty roles and tasks shown in Table 2 indicate the gaps between student's interest and confidence in their program preparation. Conduct research received the lowest gap in percentage while creating inclusive classroom climate and advising

undergraduates received the relatively higher percentage differences between student’s need and program preparation for faculty roles. Among these eleven faculty tasks, one that interested students most was to teach discussion sections (80.9%), and the second ranked tasks were to create inclusive classroom climate and conduct research (74.2%). Hence, these results revealed that students were interested in multiple roles of faculty life rather than just being researchers; at the same time, most of them felt that their programs did not provide an appropriate training for them to be confident about what they expect to be (Golde, 2004). For instance, only 27.1 percent reported that they were prepared for collaborating in interdisciplinary work which is a crucial element in current and future academic careers (DePauw, 2003; Sorcinelli, 2007); 36.1 percent felt that they were very prepared for teaching lecture courses; most of students said that their programs did not prepare them for service roles such as spending time with undergraduates outside of class, serving on a university governing body, and providing service to the community; and ethics in faculty life—“how to act responsible and in the best interests of the profession” (Golde & Dore, 2004, p. 27)—was not emphasized in graduate training (Golde & Dore, 2004).

Table 2

Level of Interest Contrasted with Perceived Preparation for Selected Faculty Roles and Tasks

Tasks & Roles	Interested and Looking forward	Prepared by My Program	Gap in Percentage
Conduct research	74.2%	65.1%	9.1%
Publish research findings	71.3%	41.9%	29.4%
Collaborate in interdisciplinary research	61.2%	27.1%	34.1%
Teach discussion sections	80.9%	57.9%	23.0%
Create inclusive classroom climate	74.2%	28.0%	46.2%
Teach lecture courses	70.1%	36.1%	34.0%
Advise undergraduates	69.9%	26.8%	43.1%
Incorporate information technology in classroom	41.4%	14.1%	27.3%
Apply expertise to community beyond	52.1%	13.8%	28.3%

campus			
Service to discipline: Review papers, serve on disciplinary society committees	41.6%	19.1%	22.5%
Serve on departmental & university committees	28.5%	12.7%	15.8%

Note. Adapted from “The Responsibility of Doctoral Programs for the Career Preparation of Future Faculty,” by C. M. Golde, 2004, *Peer Review*, 6 (3), p.27. Copyright 2004 by the Association of American College and Universities.

When Austin (2003) discussed the challenges new faculty members face and how to prepare them for changing expectations in a shifting academy, she pointed out that aspiring faculty members usually do not “demonstrate a thorough and accurate understanding of academic work” (p. 133), and this lack of understanding or awareness of faculty roles and responsibilities will disturb new faculty members’ academic careers. Austin (2003) found that doctoral students often speak about teaching and research when asked their understanding of faculty work and they do not realize the full range of faculty responsibilities, such as, “advising students, participating as an institutional citizen, evaluating or providing feedback to colleagues, handing paperwork, participating in or chairing governance committees, and developing new technologically mediated approaches to teaching” (p. 133). In addition, aspiring faculty members do not have the understanding of public service, engagement or outreach, as well as not having the knowledge of “how the profession has evolved, the role of academics in society, current issues confronting the professoriate, and the differences across institutions, which would be very important for those entering the current and future academic labor market” (p. 134). Although Austin (2002) stated that some institutions may decide that “the different dimensions of academic work can be differentiated, separated, and assigned to different individuals” (p. 124) whereas Rice (2001) identified complete scholars as those who understand the discipline, the relationship of their specific discipline to others’

fields, and “how to apply knowledge to actual societal problems, and how to help others to engage with the ideas and practices of the discipline” (Austin, 2002, p. 124). Austin (2002) pointed out that these academic institutions should prepare doctoral students with a range of faculty skills because it is not predictable whether their students who graduate will move into the professoriate with the same requirements as the previous academic institutions.

Therefore, the preparation for faculty roles and responsibilities in doctoral education is insufficient and there is a significant gap between students’ interests and doctoral education’s preparation. Especially for teaching and service roles, this gap is large (Golde, 2004). Furthermore, students do not learn about different institutional types, such as community college, liberal arts colleges, comprehensive institutions, and research universities, and how they vary in mission emphasis (Austin, 2003; Clark, 1987). For these reasons, the foundation of doctoral education should train students for the roles and responsibilities of faculty life in a variety of academic institutions (Austin, 2002; Bieber & Worley, 2006; DePauw, 2003; Golde & Walker, 2006).

Then, what should be the roles and responsibilities of the next generation faculty? Faculty roles and responsibilities used to focus on the ability to “advance learning and perpetuate it to posterity” (Boyer, 1990, p. 3) which translated to build students’ character and prepare the next generation for civic and religious leadership in colonial times. Teaching was viewed as “an act of dedication honored as fully as the ministry” (Boyer, 1990, p. 4) and professors were not hired for scholarly activities but their religious commitment throughout the eighteenth and early nineteenth centuries (Dirks, 1998; Lee, 2008). In 1869, teaching was called the scholarly duty which was the primary responsibility for professors in American

universities (Boyer, 1990). During this time period, the presidents at Yale University and Harvard College stressed that service of business and economic prosperity should be one scholarly role in their institutions. The Morrill Act of 1862 created the foundation of service mission in American higher education, both private and public universities, for providing the needed skills in order to support the emerging agricultural and mechanical revolutions (Boyer, 1990; Dirks, 1998; Goodchild, Cofell, Hines, & Gill, 1997). The faculty's role, therefore, became known as applied research which applies knowledge to practical problems for not only serving society but also reshaping it (Boyer, 1990).

Although basic research has occurred since the early 18th century, all effort was investigated outside academia. In early 1738, John Winthrop—the first academic scientist at Harvard College—built a laboratory for conducting research (Boyer, 1990). Later, George Ticknor and Edward Everett went to German universities and believed that American higher education should begin to consider the advanced scholarly studies in 1815; however, the movement was slow until the mid-nineteenth century when “leading Atlantic seaboard colleges were giving more legitimacy to the authority of scientific effort and a few were beginning to transform themselves into research and graduate institutions” (Boyer, 1990, p. 8). During the late nineteenth century, with the increasing number of scholars studying in German universities and returning to America, U.S. higher education had been influenced by the German education system and started emphasizing specialization and research (Hawkins, 1979). By the late nineteenth century, “the advancement of knowledge through research had taken firm root in American higher education” (Boyer, 1990, p. 9). The colonial colleges, switched from focusing on teaching undergraduates to concentrating on research and

graduate education. In addition, service, except for land-grant universities, was no longer important as a scholarly role. Yet the Great Depression and WWII brought the nation and all scholars together, regardless of the type of institution, for the good of the country by conducting research (Boyer, 1990; Dirks, 1998; Lovett, 1993).

Throughout the 20th century, the emphasis on faculty roles and responsibilities was basic research. According to Diamond (2002), faculty members in the 1980s took a dangerous risk of gaining a full professorship by focusing on teaching, service, or applied research. Some faculty members, although they were hired as teachers, were evaluated as researchers, even at liberal arts colleges where teaching is supposed to be considered the major responsibility (Boyer, 1990). A 1989 Higher Education Research Institute study showed that over half of the faculty members had not published anything in the past two years and over 30 percent had never published an article during their careers (Mallard, 2002). Mallard (2002) reported that in 1992, “55 percent of faculty members had never published a book, 22 percent had never published in a professional journal, and almost 30 percent were not engaged in scholarly research that would lead to publication” and this fact had not changed dramatically one decade later (p. 59). As a result, many scholars believed that universities should advance their faculty roles and rewards systems. They also began to discuss a new definition of faculty roles and responsibilities in American academia (Boyer, 1990; Mallard, 2002).

According to Diamond (2002), three independent initiatives influenced the reform of faculty roles and responsibilities at the end of the 20th century: “the work on the scholarship of professional service, led by Ernest Lynton (1995), Sandra Elman, and Sue Marx Smock

(1985), the redefinition of scholarship into four basic classifications, developed by Eugene Rice (1991) and built on by Ernest Boyer (1990), and the ‘Project I’ led at Syracuse University to describe scholarship in the various disciplines” (p. 73). Among the three contributions to the innovation of the professoriate, *Scholarship Reconsidered* by Boyer (1990) has been considered the center in this discussion (Gladwell, 2000; Henderson, 2009; Morrison, 2012; Rice, 2002; Sorcinelli, 2002; Starr-Glass, 2011;). The reasons are because a) this came at the right time when there was a desperate need for scholarship development in academia, as well as a need for expanding full range of faculty roles beyond teaching-versus-research debate, and b) this improved the theory and practice hierarchy in higher education, and forced the institutions to think in new ways about their missions and faculty responsibilities (Boyer, 1990; Gladwell, 2000; Sorcinelli, 2002). Although arguments and suspicions against this theory exist (Davis & Chandler, 1998; Gurm, 2009; Gurm, Healey, & Trigwell, 2008; Henderson, 2009), it is still viewed as the clearest and the most comprehensive definition of faculty roles and responsibilities in the 21st century. It has been adopted by many colleges and universities across the nation in order to reexamine their faculty roles and the reward structures and guidelines (Diamond, 1999; O’Meara, 2006; Rice, 2002; Rice & Sorcinelli, 2002; Zahorski, 2005). At the same time, with the increasing recognition of a variety of scholarship forms in higher education, doctoral education should also assist the next generation of faculty in being aware of the faculty reward system and preparing for full range of faculty roles they will confront in real work environments (Austin, 1996; Austin & McDaniels, 2006; Braxton, Luckey, & Helland, 2002; Sorcinelli, 2002).

Boyer's Four Domains of Scholarship

Since colonial times, American faculty have been asked to blend research, teaching, and service as traditional roles and responsibilities for professional performance in academia (Boyer, 1990). Miller (1974; 1987) questioned the traditional breakdown of research, teaching, and service and to suggest the need for a broader definition of scholarship. When universities and colleges used these three traditions to evaluate the reality of faculty academic life, they found that the trilogy of teaching, research, and service “rarely is assigned equal merit” (Boyer, 1990, p. 15). “A more comprehensive, more dynamic understanding of scholarship can be considered, one in which the rigid categories of teaching, research, and service are broadened and more flexibly defined” (Boyer, 1990, p. 16). Therefore, Boyer (1990) published *Scholarship Reconsidered—Priorities of the Professoriate* to advance the understanding of faculty work. In this new scheme, faculty roles mean not only research, but also “stepping back from one’s investigation, looking for connections, building bridges between theory and practice, and communicating one’s knowledge effectively to students” (Boyer, 1990, p. 16). Boyer (1990) expanded the view of the professoriate for this new era that should support four separate, yet overlapping, functions of scholarship: teaching, application, integration, and discovery. The four domains of scholarship recognize the great diversity of talent within the professoriate, and guide faculty members’ lives (Boyer, 1990).

The Scholarship of Teaching

Boyer (1990) contended the scholarship of teaching involves four elements. It begins with what teachers know. Professors must be well informed, widely read, intellectually engaging, and well-versed in their specialties. The first element requires hard work and

serious study that advance good teaching. Second, teaching must be a dynamic endeavor that connects teacher's understanding with students' learning. To accomplish this vision, professors need to plan carefully, examine continuously, and teach directly they also need to stimulate active learning, and encourage students to be critical, creative thinkers and lifelong learners. Third, professors must continue to be learners. Teaching means not only transmitting, but also transforming and extending knowledge. Professors themselves will be pushed to seek new knowledge through reading, classroom discussion, and comments and questions posed by students. Finally, professors must define teaching as a lifetime challenge because of the continuity and expansion of human knowledge.

Despite the existing arguments which blur the definition and evaluation of the scholarship of teaching (Hutchings & Shulman, 1999; Rice, 1991; Richlin, 2001), Kreber (2001) gathered a panel of eleven experts in this area, and asked two open-ended questions regarding the key features of the scholarship of teaching and the unresolved issues surrounding it in an effort to reach an agreement. After the panel, it was agree upon that “the scholarship of teaching is driven by a desire to understand how students learn and how to teach more effectively, requires a theoretical framework, involves reflection and the development of pedagogical content knowledge and overlaps with other aspects of scholarship” (Kreber, 2001, p. 18).

Several approaches can assess the scholarship of teaching. Kreber (2001) indicated that “the scholarship of teaching can be shared and demonstrated not only through peer-reviewed publications or conference proposals, but also by peer-reviewed learning processes” (p. 18). Videotaping is an effective way to assess instructional strategies in classrooms and a

debate is helpful for discussing the relative merits of large-group versus small-group teaching through peer-reviewed learning processes (Kreber, 2001). Additionally, Edgerton, Hutchings, & Quinlan (1991) though agreeing that the scholarship of teaching is difficult to grasp, they believed that the teaching portfolio can be an effective tool for monitoring faculty's own scholarship of teaching. Seldin (1991) agreed and asserted the teaching portfolio "as a factual description of a professor's major strengths and teaching achievements and it should be carried around to showcase special faculty talents" (p. 3). Furthermore, although Centra (2001) did not point out the specific tools to assess the scholarship of teaching, he described three dimensions to assess the scholarship of teaching in institutions: "making teaching public, focusing on teaching practices and learning outcomes, and having content and pedagogical knowledge" (p. 2). The first dimension indicates teaching requires being open, so that this sharing can be peer reviewed and instructive to others. The second dimension emphasizes the understanding of student learning in diverse ways and the investigating the relationship between teaching and learning. The last dimension focuses on knowing one's field and how to make learning connections with students (Centra, 2001).

Institution type, academic discipline, and other individual faculty characteristics also influence faculty engagement in the scholarship of teaching. From Boyer (1990), liberal arts colleges and comprehensive colleges and universities should engage in the scholarship of teaching and faculty members in these institutions are expected to accomplish more unpublished but publicly observable or published scholarly activities in teaching-focused scholarship. Braxton, Luckey, and Helland (2002) investigated and proved Boyer's expectation for an emphasis on the scholarship of teaching in both types of liberal arts

colleges and comprehensive colleges and universities. However, academic disciplines and faculty characteristics such as gender, tenure, and professional age have little to no influence on faculty's teaching-focused activities (Braxton, Luckey, & Helland, 2002). Faculty members of color consider scholarly activities in the scholarship of teaching are more important than white faculty members (Antonio, 2002).

The Scholarship of Application

Scholarship of application rarely becomes the forefront of faculty roles and responsibilities during the tenure process although it is always mentioned in higher education as service. However, Boyer (1990) argued that the scholarship of application should be considered as one of the important faculty roles as teaching and research because it contributes to the intellectual vitality of the university and solves society's problems by distributing new knowledge to other communities. From Boyer (1992), this view of the scholarship of application dated back to the nineteenth century when land-grant colleges, polytechnic institutes, normal schools and conservatory institutions performed a service to the nation by engaging in agricultural and mechanical revolutions. Even in the current twenty-first century, universities still have the responsibility to respond to the urgent needs as well as the challenges of society in the new era, thereby increasing the public's confidence in higher education and helping the country overcome difficult times (Boyer, 1992, 1996; Braxton, Luckey, & Helland, 2002; Lynton, 1995).

As a result of this responsibility, the scholarship of application is defined as "the application of disciplinary knowledge and skill which helps address important social and institutional problems" (Braxton, Luckey, & Helland, 2002, p. 27). Also, Boyer (1990) added

that new theoretical understanding and inquiry can be derived through practice and through the application of disciplinary knowledge; therefore, knowledge is not first discovered and then applied (Boyer, 1990). Rather, “theory and practice vitally interact, and one renews the other” (Boyer, 1990, p. 23). However, Boyer (1990) admitted that the definition of scholarly activities in terms of the application should be much clearer because the vague distinction between civil activities and those which require serious intellectual scholarship can misguide faculty’s academic work. Hence, Boyer (1990) pointed out that “to be considered scholarship, the scholarship of application must be tied directly to one’s special field of knowledge and relate to, and flow directly out of, this professional activity” (p. 22). The scholarship of application should serve the internal and external environment of colleges and universities and help to solve today’s societal problems, but remaining the political and intellectual independence of these colleges and universities.

Some institutional emphases occur with the scholarship of application (Boyer, 1990, Braxton, Luckey, & Helland, 2002). From Boyer (1990), research and comprehensive universities and colleges should engage themselves more in the scholarship of application by producing publications or unpublished but publicly observable scholarly activities than other types of institutions. Braxton, Luckey, & Helland (2002) later tested and determined Boyer’s predictions. Additionally, Braxton, Luckey, & Helland (2002) added that scholars in both types of research and comprehensive colleges and universities still publish more discovery-oriented scholarship than they do within the other three domains although the scholarship of application is considered more important than other types of institutions.

There are also differences in the amount of scholarly activities in the form of application among varying academic disciplines. Academic sociologists accomplish more unpublished but publicly observable scholarly activities in the form of application than do academic chemists and historians. Moreover, academic chemists accomplish more publications in terms of scholarship of application than the other academic disciplines (Braxton, Luckey, & Helland, 2002).

Additionally, faculty's gender to some extent affects the scholarship of application domain since male faculty members tend to produce slightly more application-orientated publications than female faculty members (Braxton, Luckey, & Helland, 2002). Antonio (2002) found that faculty members of color engage more scholarly activities related to application-focused scholarship than white faculty. While gender and race/ethnicity affect faculty activities, tenure, and professional age all have no influence on faculty's activities in terms of the scholarship of application (Braxton, Luckey, & Helland, 2002).

The Scholarship of Integration

According to Rice (1998), similar to the scholarship of application, there has been less attention paid to the development of the scholarship of integration than the other three domains due to the many historical evolutions in American higher education. As mentioned earlier in this chapter, teaching used to play the central role during colonial times, but with the emergence of land-grant institutions, applying knowledge and research to solving everyday problems and concerns was important for universities because it improved agricultural knowledge and people's lives. The scholarship of discovery has been viewed as an essential responsibility for scholars since 1895, especially by the end of World War II.

During the twentieth century, research retained its dominant standing regarding faculty responsibilities in American universities. Therefore, the scholarship of integration was never emphasized within the professoriate in the history of American higher education because it was considered as soft research and not really scholarship at all (Barbato, 2000). However, with the coming of the new era, it has been an urgent need for the academia that the scholarship of integration should be defined and stressed in order to develop the quality of higher education.

Boyer (1990) stated that the responsibility of universities is to “help students better understand the interdependent nature of our world” (p.77) and higher education needs to “build bridges across the disciplines, and connect the campus to the larger world” (Boyer, 1990, p. 77). Thus, for higher education faculty members, the scholarship of integration is to use the findings of individual work to make connections with other fragmentations across the disciplines to place the specialties into larger intellectual patterns (Boyer, 1990, 1996; Braxton, Luckey, & Helland, 2002). Such work might lead to varying perspectives in traditional and confining disciplinary categories (Boyer, 1990). As a result, faculty members need not only to generate new knowledge but also to recognize the importance of interdisciplinary research across the disciplines in order to build up the connections between the academia and the larger world.

The scholarship of integration also means interpretation, requires scholars to give meanings to the independent work. Although this definition is closely related to the scholarship of discovery, it seeks the meaning of findings when integrating with other disciplines (Boyer, 1990). Examples of scholarship involving the integration of knowledge

are book reviews, meta-analyses, textbooks, and books in the popular press addressing a disciplinary/interdisciplinary topic (Braxton, Luckey, & Helland, 2002).

Although the scholarship of integration has never been the dominant domain in the system of higher education, it is “the one domain most relevant to our future” (Braxton, Luckey, & Helland, 2002, p. 48). Boyer (1994) predicted that “the challenge of the next century is not only the discovery of knowledge, but fitting those discoveries into a larger pattern and perspective” (p. 118). There are two reasons: growth of collaboration and expansion of technology (Braxton, Luckey, & Helland, 2002; Dauphinee & Martin, 2000). More and more faculty members prefer working collaboratively because it can produce more creative outcomes than working alone (Baldwin & Austin, 1995). In addition, the development of technology such as Internet and e-mail can reinforce the professional relationships among faculty members (Braxton, Luckey, & Helland, 2002). According to Dunn and Zaremba (1997), discussion by technology among scholars can eliminate isolation, and technology assists in breaking the barriers of isolation and opens the doors to more integrative scholarship. Boyer (1994) stated that “I am convinced that in the twenty-first century, at the very time that we talk about specialization, we will begin to see patterns of great convergence. I think the challenge of the next century is not only the discovery of knowledge, but fitting those discoveries into a larger pattern and perspective” (p. 118). The scholarship of integration may be the most essential faculty responsibility in the future.

When discussing about faculty engagement in the scholarship of integration in different types of institutions, Ruscio (1987) found that the scholarship of integration should play a very important role in liberal arts colleges because these colleges usually encourage

academic work across disciplines where each department only has a small number of faculty members. Some other authors also agreed that liberal arts colleges and comprehensive universities and colleges should engage in the scholarship of integration compared to other types of institutions (Boyer, 1990; Braxton, Luckey, & Helland, 2002). From Boyer (1990), liberal arts colleges and comprehensive universities and colleges produce more published or unpublished but publicly observable scholarly activities in terms of the integration-focused scholarship than the scholarships of application, discovery, or teaching. Braxton, Luckey, and Helland (2002) argued that not all liberal arts colleges meet Boyer's expectation. More selective liberal arts colleges publish more integration-oriented scholarship than they publish teaching-oriented scholarship, but there are no any findings to show that whether faculty engagement may be varied in less selective liberal arts colleges.

Moreover, such differences among varying academic disciplines occur in terms of scholarship of integration. History and sociology scholars receive a higher level of achievement of unpublished but publicly observable scholarly activities than do their counterparts in the disciplines of biology and chemistry. Academics in the disciplines of history and sociology also published more on the scholarship of integration than the disciplines of biology and chemistry (Braxton, Luckey, & Helland, 2002). Gender, tenure, and years of professional experience do not affect the publication productivity in terms of integration among faculty members, but race shows minor influence that African-American faculty members tend to produce slightly more within the scholarship of integration than other racial/ethnic groups (Braxton, Luckey, & Helland, 2002).

The Scholarship of Discovery

The scholarship of discovery is at the heart of academic life and most closely resembles what is thought of as research, but it is not exactly the same (Boyer, 1992; Brown, 1997; Johnston, 1998; Lee, 2008). More precisely, the scholarship of discovery “contributes not only to the stock of human knowledge but also to the intellectual climate of a college or university” (Boyer, 1990, p. 17). It emphasizes the process and passion of giving meaning to the research effort not only with outcomes but also with the exciting moments from the advancement of knowledge in the life of an educational institution (Boyer, 1990; Morrison, 2012). This body of knowledge is generally formed through the quantity and quality of presentation and publication such as journal articles, scholarly books, book chapters, and number of citations (Braxton, Luckey, & Helland, 2002).

Types of institutions and academic disciplines influence faculty engagement in the scholarship of discovery. According to Boyer (1990), faculty members at research and doctoral-granting universities where are primarily oriented toward research engage more with this scholarship of discovery than other types of academic institutions. Braxton, Luckey, and Helland (2006) supported this opinion and found that comprehensive colleges and universities where their missions tend to be oriented toward both teaching and research entail a lower value being placed on the scholarship of discovery than on the other three scholarships. Various academic disciplines also affect faculty engagement in the scholarship of discovery (Braxton, Luckey, & Helland, 2002, 2006). Braxton & Hargens (1996) concluded that faculty members in biology and chemistry tend to be more engaged in the scholarship of discovery than faculty in history and sociology. At the same time, faculty

members in biology and chemistry contribute more publication and greater availability of external funding for research when comparing to faculty members in history and sociology. However, when Braxton, Luckey, and Helland (2002) reexamined how the scholarship of discovery may vary across different academic disciplines, there was little difference between faculty members across different academic disciplines regarding their engagement of discovery-oriented scholarship.

Additionally, a variety of individual faculty characteristics such as gender, race, professional age, tenure status, and prestige of the doctoral granting department influence their engagement in discovery (Braxton, Luckey, & Helland, 2002). Faculty gender, prestige of the doctoral granting department, and tenure yield a small influence on the scholarship of discovery. Faculty race/ethnicity also fails to influence the scholarship of discovery; but years of professional experience has a negative effect on the discovery-oriented scholarship, which means that the publication of discovery-focused scholarship decreases as the years of professional experience increases (Braxton, Luckey, & Helland, 2002). Antonio (2002) revealed that white faculty members appear to be slightly more prolific than faculty in color in terms of publishing journal articles, book chapter, and books, while faculty of color spend more time conducting research and more strongly associate the work of research with their profession.

Summary

Based on previous literature (Antonio, 2002; Boyer, 1990; Braxton & Hargens, 1996; Braxton, Luckey, & Helland, 2002; Ruscio, 1987), there is a value pattern containing the four domains of scholarship in three different types of higher education institutions. The

scholarship of discovery is valued the highest domain in academic work in both comprehensive colleges and universities and research universities from individual professionals' perspectives. For liberal arts colleges, the scholarship of teaching and integration are considered more valuable than the scholarship of discovery and application. There have been no research studies showing the relationship between the scholarship of teaching and the scholarship of integration as well as the relationship between the scholarship of discovery and the scholarship of application. In addition, Table 3 shows how demographic factors (Institution type, academic discipline, gender, race/ethnicity, tenure, and professional age) affect the four domains of scholarship. Previous literatures (Antonio, 2002; Boyer, 1990; Braxton & Hargens, 1996; Braxton, Luckey, & Helland, 2002; Ruscio, 1987) identified that gender, ethnicity, tenure, and professional age affected faculty perspectives on the scholarship of discovery; academic discipline, gender, and ethnicity affected faculty perspectives on the scholarship of application; academic discipline and ethnicity affected faculty perspectives on the scholarship of integration; and ethnicity affected faculty perspectives on the scholarship of teaching.

Table 3

Relationships between Four Domains of Scholarship and Academic Disciplines or Faculty Characteristics

	Discovery (D)	Integration(I)	Application(A)	Teaching(T)
Institution Type	X	X	X	X
Academic Disciplines		X	X	
Gender	X		X	
Race/Ethnicity	X	X	X	X
Tenure	X			
Professional Ages	X			

Preparing Future Faculty Programs

The Preparing Future Faculty program (PFF) is probably the most recognized initiative to enhance traditional doctoral training for graduate students considering academic careers and to change the culture of faculty roles preparation (Purcell, 2007). The first ten-year of this national project, sponsored by the Association of American Colleges and Universities (AAC&U) and the Council of Graduate Schools (CGS), offers “a new vision and a broader education for doctoral students who seek a career in the professoriate” (Pruitt-Logan & Gaff, 2004, p. 177). The PFF recognizes “the compelling need for new faculty members to be effective teachers, active researchers, and good academic citizens who contribute to the betterment of their departments, campuses, and communities” (Pruitt-Logan & Gaff, 2004, p. 179), and focuses on preparing doctoral students for the full range of faculty roles and responsibilities in a variety of academic settings (DeNeef, 2002; Gaff & Pruitt-Logan, 2002; Goldsmith, Haviland, Dailey, & Wiley, 2004).

The PFF initiative was launched in 1993, with support from the Pew Charitable Trusts, the National Science Foundation (NSF), and The Atlantic Philanthropies (Preparing Future Faculty, 2011). During a decade of grant activity, from 1993-2002, four phases were designed to change the culture of preparation, redefine faculty roles, and improve higher education (Goldsmith, Haviland, Dailey, & Wiley, 2004). The first two phases explored new approaches and models for preparing future faculty (1993-1996) and institutionalized these models (1997-2000) (Gerdeman, Russell, & Eikey, 2007; Goldsmith, Haviland, Dailey, & Wiley, 2004). The emphases of these two phases were to change the culture and practice of graduate preparation, for instance, “apprenticeships in teaching, research and service;

exposure to multiple faculty roles in variety of settings; preparation for changes in teaching” (Goldsmith et al., 2004, p. 21). The third and fourth phases were developed for building discipline-based models for department programs, such as Phase 3 (sciences and mathematics, 1998-2001) and Phase 4 (social sciences and humanities, 1999-2002) (Goldsmith et al., 2004). The goals of these two phases were to redefine faculty work in terms of reflecting the full range of faculty responsibilities, and to improve quality of undergraduate and graduate education by enhancing pedagogical skills among graduate students (Goldsmith et al., 2004). Between 1993 and 2002, PFF programs had been funded and coordinated at 45 doctoral universities in order to prepare graduate students for the full range of faculty roles and responsibilities, through collaborations with nearly 300 other US colleges and universities (Woods, 2011). Although the funding ended in 2002, CGS has continued to assist the development of new programs, and many of the original programs have continued to evolve (Woods, 2011). A research study regarding whether or not the PFF programs still operated (Denecke, Kent & Wiener, 2011) described 76 percent of universities rated their PFF as an active professional development program. According to Pruitt-Logan and Gaff (2004), the culture and structure of doctoral education cannot be changed overnight. PFF is a key strategy in institutional and national efforts to encourage such change; therefore, should maintain as a continuous improvement model to challenge traditional practices in graduate education.

The national PFF model has three core features, and all three features stress the development of capacities for future faculty members (Adams, 2002; Gaff & Pruitt-Logan, 2002; Thomas, 2003). The primary one is the cluster: “an anchor, doctoral degree-granting

institution or department collaborating with various partner institutions or departments” (Gaff & Pruitt-Logan, 2002, p. 3). “Although the structures of each cluster are different, the common thread is collaboration with other institutions” (Purcell, 2007, p. 48). “The cluster is guided by a steering committee that determines what is needed in future faculty and the direction of the PFF program. The committee includes representatives from each partner institution, and these representatives must have equal voice in leadership of the program” (Gaff & Pruitt-Logan, 2002, p. 3). These partnerships benefit both the students and the faculty. By participating in departmental activities and receiving responsible teaching assignments, students are exposed to different institutional cultures; faculty members also benefit by “gaining knowledge of current disciplinary research, reflecting on their roles as faculty, developing relationship with faculty at other institutions, discovering new methods to and a renewed enthusiasm for teaching” (Purcell, 2007, p. 48). Second, “the PFF programs must address the full scope of faculty roles and responsibilities” and emphasize how the expectations for these responsibilities are often quite different in different campus settings (Gaff & Pruitt-Logan, 2002, p. 3). Finally, doctoral students should have “multiple mentors and receive reflective feedback not only for their research activities, but also for their teaching and service activities” (Gaff & Pruitt-Logan, 2002, p. 3).

To achieve these three core features, PFF programs concentrate activities in three different loci: the university, because it is for all graduate students to learn general and appropriate knowledge; the department, because it is for students in each particular discipline to learn; and the partner institution, because students will learn from an institutional context different from their own institutions (Gaff & Pruitt-Logan, 2004). At the university level,

activities often include “a course on college teaching and learning, forums of faculty life and careers, discussions of faculty governance issues, and development of professional portfolios documenting students’ expertise” (Pruit-Logan & Gaff, 2004, p. 183) in varying faculty roles and responsibilities. Departments usually offer courses regarding teaching specific discipline, discussions with faculty members from different institutions about their academic careers, and discussions with alumni about how their graduate programs did and did not prepare them well for their jobs (Pruit-Logan & Gaff, 2004). Partner institutions “provide a faculty mentor to work with doctoral students, invite students to attend department or faculty meetings, include them in faculty development activities, and offer supervised teaching opportunities” (Pruit-Logan & Gaff, 2004, p. 183). Through these activities, PFF students are becoming aware of faculty roles the variety of higher education institutions expect (Gaff & Pruitt-Logan, 2002) and adapt more easily to the new faculty work and life than non-PFF competitors (DeNeef, 2002; Pruit-Logan & Gaff, 2004).

PFF also enhances students’ abilities to compete in the job market and assists them in understanding job search process (Gaff & Pruitt-Logan, 2002). DeNeef (2002) conducted a survey of PFF alumni who were in faculty positions to identify the influence of the program on their careers. The findings indicated that the alumni believed that PFF experiences helped them with their job search and the PFF program was usually the main reason cited for job offers. And PFF experiences enable students to blend in new faculty careers more smoothly than their faculty peers; especially for Asian and African students, PFF experiences are more valuable for their job search process and future academic careers. The specific activities for helping students to prepare for the job market are: “writing an introductory letter of interest;

developing a CV; fashioning a teaching, research, or diversity statement; preparing professional and teaching portfolios; anticipating the job interview and the campus visit; addressing potential colleagues; talking to deans and presidents; organizing the job talk” (DeNeef, 2002, p. 12). For PFF alumni, the market is already more open and inviting.

In addition, some lessons from the PFF programs help students realize the role of interdisciplinary collegiality besides teaching, research, and service in academic life. A former PFF participant mentioned that the interdisciplinary facet she learned from the program inspired her to make connections across campus, which resulted in her becoming involved in research projects with, receiving more information about grants and publications from, and attaining more meaningful opportunities from colleagues in other disciplines. The tenure review committees considered all these performances as important aspects of junior faculty evaluation (Lutz & Randell, 2003).

However, institutions and departments may develop their own versions of PFF programs (Gaff & Pruitt-Logan, 2002). The national PFF model allows programs the flexibility to design activities to meet the needs of diverse institutions. What's more, PFF programs should focus on core activities that are clearly valued by participants for the preparation of faculty roles and responsibilities (Goldsmith et al., 2004).

Finally, Goldsmith et al. (2004) suggested that program leaders should consider the future of PFF programs as follows:

- Involve current and former students in the design and administration of PFF programs.
- Emphasize what future faculty need to know, including how to communicate with

varying disciplines, use educational technology, and meet the needs of diverse learners.

- Include research-based career preparation.

Studies Related to PFF Programs

Goldsmith, Haviland, Dailey, and Wiley (2004) conducted a comprehensive, three-year evaluation of the Preparing Future Faculty (PFF) initiative for the Pew Charitable Trusts, the National Science Foundation, and The Atlantic Philanthropies. It involved the use of a mixed-methods approach in order to inform the implementation and impact of PFF over the ten year period. There were three goals that were examined: “(a) institutional impact of PFF at graduate, partner, and hiring institutions; (b) participant impact during graduate school; and (c) faculty career outcomes” (Goldsmith et al, 2004, p. i). After collecting and analyzing both quantitative and qualitative data (e.g. interviews with national leaders, national Office staff, 11 association officers involved in Phases 3 and 4 and 20 alumni; observations at PFF conferences and events; five Web-based surveys; 12 case studies), the findings indicated grant support for the PFF initiative provided enhanced professional preparation for thousands of graduate students without negatively affecting time-to-degree. PFF programs also influenced the culture and practice of graduate education at coordinated institutions, and most programs continued despite termination of grant funding. However, the future of PFF was uncertain because of the end of grant funding and the AAC&U/CGS partnership (Goldsmith et al., 2004).

According to Goldsmith et al (2004), 98 percent of responses from 963 current and former graduate students to the Graduate Student Web-based Survey would recommend PFF

to peers interested in academic careers. This result supported previous studies (Pruitt-Logan, Gaff, & Weibl, 1998; Gaff & Pruitt-Logan, 2002). A study conducted by the PFF National Office (Gaff & Pruitt-Logan, 2002) found that 99 percent of students would recommend PFF to other doctoral students. These two research studies emphasized the top four reasons why students participate in PFF programs:

- Prepares graduate students for academic careers at different types of higher education institutions.
- Strengthens understanding of faculty roles (Gaff & Pruitt-Logan, 2002).
- Helps graduate students with their career choices, job searches, and early career success.
- Provides professional development that does not negatively affect time-to-degree and degree completion of some participants is encouraged (Goldsmith et al, 2004).

Additionally, some important lessons were learned during the past decade regarding leadership, sustainability, faculty support, and partnerships as follows:

- Varying leadership roles are essential to PFF. For example, national leadership provides ideas, technical assistance and information, and credibility for PFF programs; university leaders enhance campus resources and continuity for PFF programs; Alumni support that programs are visible and encourage student and faculty involvement.
- “A hybrid (centralized and departmental activities) model promotes institutionalization” (Goldsmith et al, 2004, p. 102); campus-wide programs also support graduate students from different disciplines and backgrounds to develop a

sense of community.

- Campus-wide and hybrid PFF programs can be more easily institutionalized with limited graduate faculty participation than departmental programs.
- Partner institutions play a key role in PFF programs. Because of geographical limitations for some universities and colleges, the use of distance technology would help PFF participants communicate with faculty in other higher education institutions (Goldsmith et al., 2004).

DeNeef (2002) stated there was little research related to the overall impact of PFF program participation on the early career success of new faculty; therefore, he conducted research with PFF alumni who were in faculty positions to perceive how the program affected their academic careers, hiring, and their transition from graduate student to faculty member. This research study used a questionnaire and telephone interviews. Although this study was limited since the sample included individuals who chose to attend the program and were successful in securing academic jobs, it still offered evidence that PFF programs made the difference in junior faculty's academic careers (DeNeef, 2002). There were three highlights in this study:

- Alumni believed that PFF experiences made their academic careers better than others who did not participate.
- Alumni believed that PFF experiences aided them in their job search, and PFF participation was usually the reason they secured their job offers.
- Alumni believed that PFF experiences gave them a faster and surer start as new faculty members over their faculty peers (DeNeef, 2002).

Furthermore, DeNeef (2002) pointed out several professional activities contributed specifically to the alumni's successful academic career preparation: discussion with faculty regarding faculty roles and responsibilities, discussion about the evaluation, reward and tenure systems in different types of institutions, direct observation of classes, and opportunities for and assistance in developing a statement of teaching philosophy, a professional portfolio, and assessing one's own teaching. Also, DeNeef (2002) found that responses were different regarding ethnicity and academic disciplines. Asian and African students reported higher satisfaction of PFF experiences and program effectiveness than other students; alumni from professional programs and the physical sciences reported PFF activities were more valuable than alumni from the humanities or the biological or social sciences (DeNeef, 2002). Therefore, DeNeef concluded that the PFF program served as a "doubly important acculturations function" (p. 6), and suggested that departments with the higher ratings on PFF activities would need more campus-wide and departmental assistance for graduate students who seek academic employment.

Although departmental programs have limitations such as lack of faculty participation, they also play important roles in doctoral students' academic career preparation. The third phase of PFF was funded by the NSF and involved partnerships "in the biological and life science, chemistry, computer science, mathematics, and physics" (Gaff, Pruitt-Logan, & Jentoft, 2002, p. 8); the fourth phase of PFF was supported by The Atlantic Philanthropies and involved collaboration with six disciplines in social sciences and humanities: "history, political science, psychology, sociology, communication, and teachers of English" (Gaff, Pruitt-Logan, Sims, & Denecke, 2003, p. 13). In the studies related to PFF programs in

sciences and mathematics, Thomas (2002) used a questionnaire and interviewed PFF students, graduate faculty, and partner faculty. The results showed that three key stakeholder groups assessed the program positively, and the program had benefits for students, faculty, graduate departments, and partner institutions. Graduate students and alumni in sciences and mathematics responded in regard to their motives and expectations to participate in PFF programs. The most valuable activities for their preparation such as “the diverse learning experiences provided by the program; new knowledge gained from PFF seminars, conferences, and discussion sessions; networking opportunities; exposure to different types of institutions; and the opportunity to work more closely with faculty” (Gaff et al., 2002, p. 54). Time constraints, logistics and travel, lack of information and orientation, difficulty finding a mentor, and lack of awareness among the department faculty were the main obstacles for students’ preparation in sciences and mathematics (Gaff et al., 2002).

Gaff et al (2003) indicated that within PFF programs in social sciences and humanities, PFF training is a good fit for students’ interests, skills, and values and the environment and expectations for faculty at different types of academic institutions. The benefits for graduate students are:

- Learning about faculty roles and activities.
- Developing expertise as a teacher, articulating a teaching philosophy, and using different approaches to engage students.
- Understanding the variety of institutions in which graduates may work and the expectations those institutions have for their faculty.
- Being mentored by a faculty member at a partner institution.

- Developing a network of professional colleagues who can assist in job searches.
- Increasing students' sense of self-confidence as academic professionals.
- Empowering students for the job-market.
- Clarifying students' career choices (Gaff et al, 2002).

Time-management was considered one of the challenges in PFF programs, and this was also found with participating sciences and mathematics students. Thus, students expect flexible scheduling of PFF activities or a “developmentally structured” program of PFF activities, which stresses “Teaching the Discipline before their first Teaching Assistant assignment, professional ethics and mentoring before working with partner faculty, and job search strategies as they prepare to enter the job market” (Gaff et al., 2002, p. 71). Also, the other challenge for students in social sciences and humanities was that PFF participation may detract from their' research efforts such as research on disciplines, or learning assessment strategies (Gaff et al., 2002). PFF programs should emphasize that “teaching is researchable, and that all of the work that faculty perform is subject to rational inquiry, theory, and evaluation” (Gaff et al., 2002, p. 74). At last, complexity of travel and logistics makes it difficult for students to develop relevant activities in some PFF programs (Gaff et al., 2002). Goldsmith et al. (2004) suggested that the use of distance technology may assist in solving this kind of issue.

Although there are a variety of PFF programs by disciplines, the significant initiatives of PFF programs are to improve the culture of higher education and to teach the roles of faculty members (Gaff et al., 2002; 2003). “Disciplinary societies perceive PFF as a strategy

for enhancing doctoral education in ways that better prepare graduate students for and inform faculty of changing realities” (Gaff et al., 2002, p. 47).

A campus-wide PFF program and two departmental PFF programs are reviewed next. The goals of The Arizona State University (ASU) PFF program model are: (a) to expose participants to a variety of higher education institutions; (b) to reveal varying faculty roles and responsibilities; and (c) to provide supervised experiences in teaching, research, and service in all types of higher education institutions. To achieve these goals, ASU designed a campus-wide PFF program including three phases that participants committed to learning during a two-year timeframe: seminar phase, experiential phase, and capstone phase (Lutz & Ransdell, 2003). Throughout these three phases, students gain an understanding about faculty roles and how they vary by institutions and how to design experiences that will offset weaknesses in their current graduate training. They also opportunities to talk with returning PFF fellows regarding their experiences in PFF program (Lutz & Ransdell, 2003).

After interviewing former PFF participants, Lutz and Ransdell (2003) summarized that “failure to attend to the multi-faceted roles of a faculty member can lead to the failure of profession or failure within profession” (p. 70). Consequently, although individual participants have different experiences in PFF programs, the stories of interviewees show the need of such preparation (Lutz & Ransdell, 2003). Specifically, one interviewee mentioned that Boyer’s (1990) *Scholarship Reconsidered*, which was the first book she was asked to read in the PFF program, exposed faculty roles and classification of higher education institutions. Without this experience, she would not have had the thoughtful conversation during her job search process that led to her job offer. As she recalled (cited by Lutz &

Ransdell, 2003), “ it is unclear whether this conversation had any bearing upon my eventual hire, but it helped me to feel comfortable and confident as I progressed through the rest of the interview” (p. 66). Because of Boyer’s (1990) work and the PFF seminars, these students understood and appreciated the different roles of faculty members and various types of professorial contributions in higher education (Lutz & Ransdell, 2003).

North Carolina State University (NCSU) implemented a PFF program in the Department of Sociology in 2000 and incorporated the fourth phase of the National Preparing Future Faculty Initiatives (Jones, Davis, & Price, 2004). The goals of NCSU’s program are: (a) to ensure the preparation of doctoral students regarding faculty life in a wide variety of universities and colleges; (b) to foster students to complete collaborative research; (c) to help students clarify faculty responsibilities; and (d) to fully prepare students for the academic job market (Jones et al., 2004). In NCSU’s PFF program, off-campus partner faculty members organize students to visit other institutions; set up in-house mentoring teams, including faculty from different ranks as well as students at different stages in doctoral education, serve as collaborative research mentorships; provide professional development seminars for meeting program goals (Jones et al., 2004).

Through an online questionnaire for all faculty and PFF students and follow-up interviews, the findings indicated that NCSU’s PFF program fulfilled its goals and students strongly recommended this program to others. Especially, African-American and female students found it is useful for them to learn about the realities of academia and the multiple pressures among minority junior faculty in talking with the off-campus and on-campus faculty mentors (Jones et al., 2004).

Finally, there were two suggestions for this program at NCSU. First, students should be clear that the primary goal of assistant professors is to earn tenure and promotion; therefore, it was vital for students to learn about what universities require for tenure and promotion, and the reward structure regarding various faculty roles. Second, the importance of service needed to be stressed in the NCSU program. Although the original focus of this program was not inclusive of training for service, it was recommended that the NCSU program adds the role of service as a key component as teaching and research (Jones et al., 2004).

Gerdeman, Russell, and Eikey (2007) introduced a seminar curriculum as part of PFF preparation in the chemistry department, University of California, Los Angeles (UCLA) and evaluated the seminar program by sending a brief questionnaire to former participants. “Of 91 people contacted, 37 responded with completed questionnaires” (Gerdeman et al., 2007, p. 287). The results, on one hand, supported previous studies (Bogle, Blondin, & Miller, 1997; DeNeef, 2002) indicating that the former participants in the PFF seminars perceived their experiences in the seminars valuable both for their current academic employment and for the work and responsibilities of their academic positions. Some seminars with direct and immediate benefits (e.g. reflecting on teaching philosophies and learning theory) particularly rated these types of activities as the most valuable ones. The results also reflected a need for opportunities from outside of PFF to help students learn more about teaching, academic life, and searching for a job, for hands-on experiences with teaching mentors, and for dedicated faculty members to coordinate a seminar class, and to be “resourceful and creative in incorporating meaningful seminar components” (Gerdeman et al., 2007, p. 291).

A recent study regarding PFF programs conducted by the Council of Graduate Schools (CGS) pointed out that the number of institutional collaborations with partner institutions has decreased over the years due to lack of grant funding (Denecke et al., 2011). Therefore, many PFF programs do not require students to visit partner institutions, which used to be an integral part of the PFF model during the grant funded period (Denecke et al., 2011). In addition, the findings showed that assessment of student learning was one of the most important faculty roles in U.S. higher education, and faculty were expected to increase their abilities in the scholarship of application (Boyer, 1990). It is important that they should assess student learning outcomes and use those results to make improvement in the educational environment. Students with effective skills in assessing student learning will also be more competitive in the academic job market. PFF programs, as a strategy of preparing next generation faculty, should integrate the assessment of student learning into its graduate student professional development (Denecke et al., 2011).

According to Denecke et al. (2011), future recommendations for PFF programs should “develop a framework about how to use assessment to measure the effectiveness and success of PFF programs” (p. 49), and “provide a model for evaluating the effectiveness of these programs in a way that could potentially encourage greater participation by students, greater endorsement by faculty, and greater adoption by US universities” (p. 49).

Summary

This chapter overviewed the general picture of the professoriate preparation in current higher education, explored the challenges in doctoral education regarding faculty roles and responsibilities, discussed in depth about what faculty roles are, introduced the training

programs regarding doctoral students' academic career development, and researched how to utilize a clear definition—Boyer's four domains of scholarship—to guide academic career training for doctoral students in order to overcome challenges in current higher education.

Chapter 3 consists of the procedures, data collection and results, and data analysis. Chapter 4 presents the findings of this study. The summary of the study, conclusions, implications and recommendations for further practice and research are concluded in Chapter 5.

Chapter 3: Methods

This section of the study contains a brief overview of the study, information on the research design, the population and sample, instrumentation, methods of data collection, and data analysis.

Introduction

Austin and McDainels (2006) revealed that American universities and colleges should increase interest in preparing future faculty using Boyer's (1990) four domains of scholarship so that students can learn broad scholarly activities and be ready for the array of expectations they may face in future careers. However, doctoral education may not provide students a comprehensive understanding of what the faculty career entails or an adequate understanding of the range of higher education types in which they might work. Therefore, preparation through Preparing Future Faculty (PFF) programs will help students create realistic expectations and assist students in finding future institutional positions with reduced conflict and confusion (Golde, 2004; Goldsmith, Haviland, Dailey, & Wiley, 2004).

Among the previous studies regarding PFF programs and preparing doctoral students for academic career paths, few used a clear definition of faculty roles to analyze and design academic career preparation programs. There was also a lack of literature examining PFF preparations by comparing current and aspiring faculty members' perceptions in the importance of faculty roles in order to identify realistic worklife guidelines for future faculty.

As a result, this study sought to determine how the PFF graduates perceived their preparation for faculty roles and responsibilities in terms of Boyer's (1990) four domains of scholarship, as well as the importance of those faculty tasks in their current or future faculty positions. It explored whether there were different perceptions in the importance of faculty roles between current and aspiring faculty members. Finally, selected factors, such as work status, type of institution, discipline, and ethnicity were considered in this study to identify any differences in the graduates' perceptions of preparation and importance of faculty roles in the PFF program.

Purpose of the Study

The purpose of this study was to examine a Preparing Future Faculty (PFF) program in relation to Boyer's (1990) four domains of scholarship. Participants were from a Southeastern U.S. four-year public university, as well as were preparing to serve in academic faculty roles in the future. The importance of these four scholarships in faculty positions as well as participants' demographic factors, such as work status, institution type, gender, age, ethnicity, nationality and discipline, which might affect PFF graduates' perceptions in preparation and importance of faculty roles were also discussed. Furthermore, the study sought to identify a model to develop future PFF programs based on a clear definition of faculty roles and to fill the gaps between the aspiring faculty members' expectations for future faculty careers and the realistic day-to-day worklife across the four domains (Golde, 2004).

Research Questions

The following research questions were used in this study:

1. How do graduates perceive the preparation they receive in the PFF program and the importance of faculty roles for their current or future faculty positions in terms of the scholarship of teaching?
2. How do graduates perceive the preparation they receive in the PFF program and the importance of faculty roles for their current or future faculty positions in terms of the scholarship of application?
3. How do graduates perceive the preparation they receive in the PFF program and the importance of faculty roles for their current or future faculty positions in terms of the scholarship of integration?
4. How do graduates perceive the preparation they receive in the PFF program and the importance of faculty roles for their current or future faculty positions in terms of the scholarship of discovery?
5. What is the effect of the demographic variables on the perceptions of preparation and importance of faculty roles for faculty positions in the scholarship as related to teaching, application, integration, and discovery?

Methods

The design for this study is classified as survey research which is defined as a “means for gathering information about the characteristics, actions, or opinions of a large group of people” (Pinsonneault & Kraemer, 1993, p. 77). Survey research is identified by three distinguishing characteristics: 1) quantitative description of specific aspects of a given population, 2) subjective data, and 3) findings that can later be generalized back to the

population (Kraemer, 1991). A survey is considered the data collection tool for conducting survey research.

Because the survey was administrated at one point in time, a cross-sectional survey design approach was chosen to examine “current attitudes, beliefs, opinions or practices” (Creswell, 2002, p. 398). This approach was used to identify current perspectives from the graduates regarding their preparation in the PFF program and the importance of the preparation for future faculty positions.

An online survey was used for carrying out this research study during the 2012-2013 academic year and graduates from one PFF program at a 4-year public university in the southeastern United States participated in this study (Appendix 1). Qualtrics Online Survey Software was used to design the survey and gather data. Then the data was exported to Statistical Package for the Social Sciences (SPSS V20) for further analysis. In this study, there were five phases of the analysis plan: a) exploring demographic factors by using descriptive statistics; b) using descriptive statistics to address the graduates’ perspectives of preparation and importance of faculty roles; c) using Independent T-tests to compare the importance of faculty roles between current and aspiring faculty member groups; d) conducting specific comparisons within the sample by using Multivariate Analysis of Variances (MANOVAs), and e) concluding with a qualitative analysis of the open-ended survey question responses by the participants.

Population and Sample

The population for the study consisted of Preparing Future Faculty (PFF) program graduates from a 4-year public university in southeastern United States during 2004-2012

academic years. However, due to a coordinator change in this program since the academic year 2009-2010, a consultation was conducted by the researcher with both the current coordinator and the previous coordinator, in order to confirm that the content of the PFF program had not been changed significantly. After receiving this confirmation, two rosters of names were provided separately by current and former coordinators. Although the names of participants were available, most of their university e-mails—the only contact was recorded in the rosters—had expired after their graduation. Therefore, the researcher searched each individual's name on the Internet to find their current e-mails, and also requested email addresses from academic departments for PFF graduates who still could not be found through the Internet. A total of 119 PFF graduates' e-mail addresses were found.

According to Gay (1996), when the population size is around 100, it is better to count the whole population as a sample in one study. As a result of this suggestion, all 119 PFF graduates were used as a sample for this study.

Instrumentation

Researchers at Auburn University, where the study was conducted, must obtain permission from the Institutional Review Board (IRB) to use the response of human subjects. Research Protocol Review Form, information consent, information letter, permission letter from the PFF program coordinator, and a copy of the survey instrument were forwarded to the IRB for approval prior to continuation of study (Appendix 2). The Board approved the protocol and granted the necessary permission on February 14, 2012.

The survey used in this study, entitled *Future Faculty Career Preparation Survey* (FFCP), included two key questions: how prepared students were through the PFF program

and the importance of the four domains of scholarship to graduates' current or future faculty positions. Five faculty tasks were included for each domain of scholarship, yielding a total of 20 faculty tasks. The 20 faculty tasks were developed based on three existing survey instruments to define the four levels of scholarships: Faculty Professional Performance Study Survey (FPPS), the survey of Doctoral Education and Career Preparation (DECP), and the Preparing Future Faculty (PFF) Evaluation.

The FPPS Survey was an important resource for this research and was initially developed by Braxton, Luckey, and Helland (2002). It provided an inventory of scholarship (Appendix 3) as a detailed list of faculty professional performance based on four domains of scholarship. Each domain of scholarship included two or three of the following categories: scholarly activities, unpublished scholarly outcomes, and publications. Under each category, varying activities were presented. The purpose of their research was to measure full-time faculty engagement in the four domains of scholarship during their daily work; therefore, all activities on this list represented faculty roles and responsibilities. Two experts on faculty scholarly performance established face validity for the various types of professional tasks (Braxton, Luckey, & Helland, 2002). The current research did not use all 90 activities in the Faculty Professional Performance Study Survey but summarized these 90 activities into 17 items. By modifying the FPPS Survey, five items each for application and integration scholarship areas were created, the scholarship of teaching contained four items, and the scholarship of discovery, three items.

According to Golde and Dore (2004), the survey of DECP was used to find out the reasons why students pursued doctoral degrees and how effective their programs were to

prepare them for faculty careers. One survey question in the survey of DECP indicated different faculty tasks, which contributed to the FFCP survey. Conduct research and Develop and articulate a teaching philosophy were the only two tasks in the survey of DECP that related to the four scholarships but not mentioned in the Inventory of Scholarship.

To explore the final item for the scholarship of discovery, a review of previous two-year evaluations on a PFF program at a public university discovered that “Writing a Research Statement” was the most important preparation for their future faculty careers. Therefore, using these three instruments, 20 faculty tasks for the two main questions were developed. In Table 4, data are presented about the procedures used to develop the 20 items for this current research study. A detailed list is in Appendix 4 and 5.

A panel of experts was used to confirm the validity of these 20 faculty tasks for the four domains of scholarship in the current survey. Four administrators and faculty members whose expertise is the four domains of scholarship participated in the panel. The researcher selected nine items from the three instruments including conduct research, teaching philosophy and research statement and sent them to the expert panel in order to confirm scholarship categories. All four specialists agreed with the researcher’s selection (see Appendix 6).

The first question regarding preparation for the four domains of scholarship uses a 4 point Likert scale: 1= Poor, 2= Fair, 3= Good, and 4= Excellent. The second question regarding the importance for faculty positions in term of the four scholarship domains used a

4 point Likert scale: 1= Unimportant, 2= Somewhat Unimportant, 3=Somewhat Important, and 4= Important. Likert-type scales can be reliable and valid instruments for measuring attitude and perceptions (Robertson, 2012).

Table 4

Procedures of Developing 20 Items for the Four Domains of Scholarship

	Teaching	Application	Integration	Discovery
FPPS Survey	4/5(29/29)	5/5(24/24)	5/5(29/29)	3/5(8/8)
DECP Survey	Teaching Philosophy	Done	Done	Conduct Research
PFF Evaluation	Teaching Philosophy	Done	Done	Research Statement
FFCP Survey	5/5	5/5	5/5	5/5

The Future Faculty Career Preparation Survey, besides the two main questions mentioned above, also included demographic and two open-ended questions. The demographic data contained gender, age, ethnicity, nationality, work status, job position, academic discipline, and type of institution. Two open-ended questions asked participants to evaluate the most valuable activities for faculty preparation through the PFF program and to what extent the PFF program assisted their job search and process.

Another expert panel was created to critique the entire survey instrument. A group of selected survey-design specialists, academic professors in higher education areas, and Preparing Future Faculty program instructors were asked to review the survey instrument for clarity of directions, concepts, and definitions. Modifications were made to the survey instrument based on recommendations from the expert panel.

A pilot test was conducted with five doctoral students for detecting issues with the survey (Czaja & Blair, 2005). After receiving feedback on the clarity of questions, response options, format, and the length of completion time, as well as reviewing the test responses for

any inconsistencies or unexpected answers, the researcher made minor improvements for the survey prior to implementing on a large scale (Suskie, 1996).

A Cronbach’s Coefficient Alpha was used for assessing internal consistency of the eight dependent variables in this research study (Huck, 2004). A large correlation coefficient, usually $\alpha = .70$ or better indicates that items are internally consistent (Sowell, 2001). All Cronbach’s alphas for the two main research questions based on four domains of scholarship are listed in Table 5. The scholarship of teaching domain in terms of the importance of faculty roles shows very low internal consistency. However, the researcher retained the domain of teaching for importance in the study because this was the first testing of the FFCP survey (Holton III, Wilson, & Bates, 2009).

Table 5

Reliability Analysis by Domain of Scholarship

Domain of Scholarship	Cronbach’s Alpha
Preparation-Teaching	.767
Preparation-Application	.829
Preparation-Integration	.850
Preparation-Discovery	.886
Importance-Teaching	.416
Importance-Application	.703
Importance-Integration	.811
Importance-Discovery	.830

Data Collection

Prior to sending the survey to PFF graduates, permission was obtained from the coordinator of the PFF program at this public university in southeastern U.S. (Appendix 7). The coordinator confirmed the relevancy of this study for the PFF program and provided access to graduates’ contact information. For graduates whose university emails did not exist, the researcher searched the Internet for their new email addresses. For some of them, who

still could not be reached, the researcher sent an email to their previous academic departments requesting contact information. After receiving all traceable emails for PFF graduates, an online survey would be sent via e-mail.

Rather than being presented on a single, lengthy web page, the survey was designed using Qualtrics, and a web link to the survey was sent to the potential respondents during mid- October, 2012. The information consent letter was attached to this email with the survey link as an Adobe PDF file. It included the following information: a) introduction of the research, b) the purpose of the survey, c) statement of approval by the coordinator, d) phone number for Office of Human Subjects Research at Auburn University, e) guaranteed confidentiality and anonymity, and f) a statement that participation by the PFF graduates was voluntary. What is more, the e-mail also contained an invitation letter from the researcher that included the goal of this study, affirmation of support and encouraged cooperation from the coordinator, survey direction and appreciation of participation. To receive a larger response rate, a reminder was sent to the same PFF graduates one week later.

Secure Socket Layer (SSL) was used for transmitting information privately over the Internet and is supported in all modern web browsers. SSL encryption was used for collecting and downloading data. All responses in the online survey were anonymous unless respondents agreed to provide either phone or e-mail information for follow-up research. The survey was concluded by the end of October 2012.

Data Analysis

The data generated from the study were coded and analyzed using the Statistical Package for the Social Sciences (SPSS V20), a computer program designed to perform

numerous statistical analysis. To analyze each research question, descriptive statistics and independent sample t-tests were calculated for the four domains of scholarship individually, and followed by an item-by-item analysis that was conducted for detailed results. Data was arranged in both narrative form and in accompanying tables. Then, seven Multivariate Analysis of Variances (MANOVAs) were conducted for determining whether or not there were statistically significant differences in the perceptions of preparation and importance of faculty roles affected by demographic factors as related to discovery, teaching, integration, and application.

Qualitative variables from the open-ended questions were summarized via the use of frequencies and percent of responses. The researcher included answers based upon the frequency of responses.

Summary

In this chapter, appropriate methods of research, population and sample, instrumentation, data collection and statistical analysis were identified. The validity and reliability of the instrument were determined according to the acceptable guidelines and review by a panel of experts. Permission was granted to collect data as outlined in the standards from the Office of Human Subjects Research.

The results are analyzed and presented in Chapter 4. The summary, conclusions and recommendations of this investigation are provided in Chapter 5.

Chapter 4: Findings

Introduction

Among the previous studies regarding PFF programs and preparing doctoral students for academic career paths, few used a clear definition of faculty roles to analyze and design academic career preparation programs. There was also a lack of literature examining PFF preparations by comparing current and aspiring faculty members' perceptions in the importance of faculty roles in order to identify realistic worklife guidelines for future faculty. As a result, this study sought to determine how the PFF graduates perceived their preparation for faculty roles and responsibilities in terms of Boyer's (1990) four domains of scholarship, as well as the importance of those faculty tasks in their current or future faculty positions. It explored whether there were different perceptions in the importance of faculty roles between current and aspiring faculty members. Finally, selected factors, such as work status, type of institution, discipline, and ethnicity were considered in this study to identify any differences in the graduates' perceptions of preparation and importance of faculty roles in the PFF program.

The purpose of this study was to examine a Preparing Future Faculty (PFF) program in relation to Boyer's (1990) four domains of scholarship. Participants were from a Southeastern U.S. four-year public university, as well as were preparing to serve in academic faculty roles in the future. The importance of these four scholarships in faculty positions as well as participants' demographic factors, such as work status, institution type, gender, age, ethnicity, nationality and discipline, which might affect PFF graduates' perceptions in preparation and importance of

faculty roles were also discussed. Furthermore, the study sought to identify a model to develop future PFF programs based on a clear definition of faculty roles and to fill the gaps between the aspiring faculty members' expectations for future faculty careers and the realistic day-to-day worklife across the four domains (Golde, 2004).

Research Questions

The following research questions were used in this study:

1. How do graduates perceive the preparation they receive in the PFF program and the importance of faculty roles for their current or future faculty positions in terms of the scholarship of teaching?
2. How do graduates perceive the preparation they receive in the PFF program and the importance of faculty roles for their current or future faculty positions in terms of the scholarship of application?
3. How do graduates perceive the preparation they receive in the PFF program and the importance of faculty roles for their current or future faculty positions in terms of the scholarship of integration?
4. How do graduates perceive the preparation they receive in the PFF program and the importance of faculty roles for their current or future faculty positions in terms of the scholarship of discovery?
5. What is the effect of the demographic variables on the perceptions of preparation and importance of faculty roles for faculty positions in the scholarship as related to teaching, application, integration, and discovery?

Demographic Results

A total of 79 PFF program graduates responded to the online survey of this research study for a response rate 66.4% (79/119). Of the respondents, 71 fully completed the survey, resulting in a completed response rate of 59.7% (71/119). Among these 71 participants, 62 reported that they are currently or planning to be faculty members. Therefore, the 62 respondents were used for this study and were included in the quantitative data analysis. All personal demographic information was based on respondents' self-identified statuses. Descriptive statistics, including frequencies and percentages, were run in SPSS to summarize, analyze, organize, and describe the data and to provide an indication of the relationships between all variables.

Table 6 provides a summary of the 62 survey participants' gender, age, ethnicity, and nationality. The results in Table 6 indicate that the study was composed of a relatively equal number of males (56.5%) and females (43.5%). The data also indicate that the respondents were most likely between the ages of 26-34 (66.1%), white (66.1%), and the U.S. citizenship (67.7%).

Table 6

Demographic Characteristics Data of Participants (N= 62)

Characteristic	<i>n</i>	Percent
Gender		
Male	35	56.5
Female	27	43.5
Age		
18-25	4	6.5
26-34	41	66.1
35-54	17	27.4
Ethnicity		
White/Caucasian	41	66.1
Black/African American	7	11.3
Hispanic	2	3.2
Asian	12	19.4
Nationality		

Domestic	42	67.7
International	14	22.6

The participants' current work status is summarized in Table 7. According to the data in Table 7, most participants of this study were current doctoral students (41.9%) or faculty members (43.5%) while seven were post-doc students and one was a master's student.

Table 7

Work Status Data of Participants (N= 62)

Work Status	<i>n</i>	Percent
Doctoral Student	26	41.9
Faculty Member	27	43.5
Post-doc Researcher	7	11.3
Other	2	3.2

As seen in Table 8, most of the respondents currently studied or worked in research universities (40.3%), while 29.0% were in comprehensive universities and 16.1% were in liberal arts colleges. One respondent was in a community college and eight were in other types of work places, such as religious or regional universities.

Table 8

Institution Type Data of Participants (N= 62)

Type of Institution	<i>n</i>	Percent
Research University	25	40.3
Comprehensive University	18	29.0
Liberal Arts College	10	16.1
Community College	1	1.6
Other	8	12.9

This research study used Biglan's (1973) model of academic discipline classification (Appendix 8) to divide academic disciplines into two categories: hard and soft. Hard disciplines include disciplines concerning with universals and simplification such as chemistry, physics, and

engineering while soft disciplines include disciplines concerning with particular cases such as sociology, history, and educational administration. Biglan’s (1973) classification has been the most used scheme in examining differences among academic disciplines (Jones, 2011). Based on this model of classification, the number and percentage with regard to academic discipline are listed in Table 9.

Table 9

Academic Discipline Data of Participants (N= 59)

Discipline	<i>n</i>	Percent
Hard	14	22.6
Soft	45	77.4

Note. Three participants did not respond to this question.

Analysis

An online survey was administered during the 2012-2013 academic year and graduates from one PFF program at a 4-year public university in the southeastern United States participated in the survey. Qualtrics Online Survey Software was used to design the survey and gather data. Data was then exported to Statistical Package for the Social Sciences (SPSS V20) for further analysis. In this chapter, there were five phases of the analysis plan: a) exploring demographic factors by using descriptive statistics; b) using descriptive statistics to address the graduates’ perspectives of preparation and importance of faculty roles; c) using Independent T-tests to compare the importance of faculty roles between current and aspiring faculty member groups; d) conducting specific comparisons within the sample by using Multivariate Analysis of Variances (MANOVAs), and e) concluding with a qualitative analysis of the open-ended survey question responses by the participants. The dependent variables in MANOVAs are respondents’ perspectives of the PFF program preparation and the importance of faculty tasks based on

Boyer's four domains of scholarship, and the independent variables are participants' work status, age, gender, ethnicity, nationality, institution type, and academic discipline.

The Preparing Future Faculty Career Preparation Survey consisted of 20 Likert-scaled survey items. For the first ten survey items regarding PFF program preparation, the following coding method was used: 1= Poor, 2= Fair, 3= Good, and 4= Excellent. The second ten survey items regarding the importance for faculty positions in term of the four scholarships was followed by another 4 point Likert scale: 1= Unimportant, 2= Somewhat Unimportant, 3=Somewhat Important, and 4= Important. Therefore, the high means represented the PFF program preparation was excellent and the faculty tasks were important for current or future faculty position from participants' perspectives. Means and standard deviations were calculated for exploring the answers of Research Question 1 to 4.

Research Question 1: How do graduates perceive the preparation they receive in the PFF program and the importance for their current or future faculty positions in terms of the scholarship of teaching?

The data cited in Table 10 reveal the mean scores and standard deviations for the scholarship of teaching and the related faculty tasks. The first column after the question statements indicates participant' responses to PFF program preparation. The second column indicates students' responses to the PFF program's importance for faculty roles in future positions. The third column indicates faculty members' responses to the PFF program's importance for faculty roles in their current positions. All mean scores in the importance columns for both PFF students and faculty were higher than their perceptions of PFF program preparation. Therefore, the scholarship of teaching was considered more important in current or future faculty positions than perceived gain through the PFF program.

For PFF program preparation, the highest mean score among all five items was *Develop and articulate a teaching philosophy* ($M=3.23$), and the lowest mean score was *Create unpublished scholarly outcomes or publications related to pedagogical knowledge, development, and classroom research, i.e., method, approach, and materials* ($M=2.48$). For the importance of faculty tasks, students considered *Develop and alter a new course* ($M=3.74$) and *Engage pedagogical knowledge and skills in teaching* ($M=3.74$) were the most important tasks related to the domain of teaching. Faculty members considered *Prepare a new syllabus for a course* ($M=3.82$) as the most important task related to the domain of teaching.

There were no significant differences in terms of importance of faculty tasks between student and faculty member groups.

Table 10

Mean Scores and Standard Deviations for Scholarship of Teaching Domain and Items

Scholarship of Teaching Domain and Survey Item	Preparation ^a		Importance			
	<i>M</i>	<i>SD</i>	Student ^b		Faculty ^c	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Overall	2.77	.600	3.53	.368	3.55	.353
a. Develop and articulate a teaching philosophy	3.23	.698	3.63	.615	3.33	.877
b. Prepare a new syllabus for a course	2.62	.958	3.73	.521	3.82	.396
c. Develop and alter a new course	2.37	.991	3.74	.514	3.78	.424
d. Engage pedagogical knowledge and skills in teaching	3.17	.740	3.74	.445	3.78	.506
e. Create unpublished scholarly outcomes or publications related to pedagogical knowledge, development, and classroom research, i.e., method, approach, and materials	2.48	.725	2.81	1.08	3.03	.808

Note. ^a $n=60$. ^b $n=31$. ^c $n=27$.

Research Question 2: How do graduates perceive the preparation they receive in the PFF program and the importance for their current or future faculty positions in terms of the scholarship of application?

Table 11 shows mean scores and standard deviations calculated for both respondents perceptions of the preparation of the PFF program and the importance for current or future faculty positions in terms of the application domain. The first column after question statements presents the participants' responses to PFF program preparation. The second and third columns present the participants' responses to the importance of faculty roles for current or future positions. All importance mean scores from both student and faculty groups were higher than the mean scores for PFF program preparation. For all five individual items in terms of application domain, the mean scores of the importance from both student and faculty groups were also higher than the five mean scores of the perceived preparation gained by PFF program participation.

When comparing the mean scores of all five items within the preparation category, *Develop unpublished scholarly outcomes for dealing with a problem of practice, i.e., seminars, process, and study* ($M=2.35$) yielded the lowest mean score; while *Serve on departmental and institutional-wide committees, i.e., help craft policy, solve problems, or engage in university governance* ($M=2.92$) yielded the highest. For the importance of current or future faculty positions among the five tasks, students considered *Incorporate information technology in the classroom* ($M=3.51$) the most important task, while faculty members perceived *Create publication to solve the practical problems by using the application of the knowledge and skill of your academic discipline, i.e., presentations and articles* ($M=3.63$) the most important role for faculty work in the terms of application.

Table 11

Mean Scores and Standard Deviations for Scholarship of Application Domain and Items

Scholarship of Application Domain and Survey Item	Preparation ^a		Importance			
	<i>M</i>	<i>SD</i>	Student ^b		Faculty ^c	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Overall	2.61	.703	3.18	.585	3.28	.512
a. Incorporate information technology in the classroom	2.82	.911	3.51	.626	3.52	.580
b. Apply your expertise in service to the community beyond campus, i.e., off-campus consultation	2.39	.992	3.03	.836	2.93	.829
c. Develop unpublished scholarly outcomes for dealing with a problem of practice, i.e., seminars, process, and study	2.35	.860	2.87	.991	2.82	.962
d. Create publication to solve the practical problems by using the application of the knowledge and skill of your academic discipline, i.e., presentations and articles	2.57	.909	3.26	1.03	3.63	.629
e. Serve on departmental and institutional-wide committees, i.e., help craft policy, solve problems, or engage in university governance	2.92	.889	3.23	.762	3.52	.700

Note. ^a*n*=60. ^b*n*=31. ^c*n*=27.

Similar to the findings related to the five items in domain of teaching, there were no significant differences in perceptions of five application items between student and faculty member groups.

Research Question 3: How do graduates perceive the preparation they receive in the PFF program and the importance for their current or future faculty positions in terms of the scholarship of integration?

As indicated in Table 12, the mean scores of importance for both groups were higher than the mean scores of preparation except for faculty responses to *Review published materials on disciplinary/interdisciplinary topics* (*M*=2.58). The most important faculty task among all five items from students' perspectives was *Interpret knowledge in your discipline to others from an academic discipline outside your own or from a non-academic setting* (*M*=3.36) and *Develop or*

create products such as talk, presentation, lecture, article, etc; integrated with an academic discipline outside your own ($M=3.36$). For faculty's responses, *Develop or create products such as talk, presentation, lecture, article, etc; integrated with an academic discipline outside your own* ($M=3.41$) received the highest mean score. From all respondents' perspectives, *Develop or create products, i.e., talk, presentation, lecture, article, etc., integrated with an academic discipline outside your own* ($M=2.83$) yielded the highest mean score in term of the preparation in the PFF program, while *Develop or create disciplinary/interdisciplinary products, i.e., talk, presentation, lecture, article, etc., for the local or national media* ($M=2.07$) yielded the lowest. There were no significant differences between student and faculty groups in perspectives of importance of five integration items.

Table 12

Mean Scores and Standard Deviations for Scholarship of Integration Domain and Items

Scholarship of Integration Domain and Survey Item	Preparation ^a		Importance			
	<i>M</i>	<i>SD</i>	Student ^b		Faculty ^c	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Overall	2.55	.720	3.17	.603	3.35	.637
a. Review published materials on disciplinary/interdisciplinary topics	2.66	.856	2.83	1.053	2.58	1.027
b. Interpret knowledge in your discipline to others from an academic discipline outside your own or from a non-academic setting	2.80	.917	3.36	.608	3.33	.679
c. Develop or create products (talk, presentation, lecture, article, etc) integrated with an academic discipline outside your own	2.83	.867	3.36	.661	3.41	.800
d. Develop or create products (talk, presentation, lecture, article, etc) on your discipline for the local community or organization	2.38	.941	3.16	.898	2.74	.994
e. Develop or create disciplinary/interdisciplinary products (talk, presentation, lecture, article, etc) for the local or national media	2.07	.972	3.13	.806	3.19	.736

Note. ^a $n=60$. ^b $n=31$. ^c $n=27$.

Research Question 4: How do graduates perceive the preparation they receive in the PFF program and the importance for their current or future faculty positions in terms of the scholarship of discovery?

In Table 13, data are presented about the scholarship of discovery. As demonstrated in the previous three domains, the overall mean scores of the perceived importance of the PFF program from both groups were higher than the mean preparation scores. The mean score of importance for the student group was 3.67, for the faculty group it was 3.74, and the mean score of PFF program preparation was 2.58. At the same time, all mean scores for the five tasks in terms of importance for both groups were higher than the mean scores for PFF program preparation. Among all five tasks related to preparation, *Write grant and external funding reports* ($M=2.24$) received the lowest mean score, while *Develop and articulate a research statement* ($M=3.03$) received the highest mean score. For the mean scores of all five tasks in importance for current faculty positions, *Conduct research* ($M=3.78$) received the highest score. From the students' responses, *Publish research findings* ($M=3.77$) yielded the highest mean score. These were no significant differences between the two groups regarding the importance of faculty tasks in terms of discovery.

Table 13

Mean Scores and Standard Deviations for Scholarship of Discovery Domain and Items

Scholarship of Discovery Domain and Survey Item	Preparation ^a		Importance			
	<i>M</i>	<i>SD</i>	Student ^b		Faculty ^c	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Overall	2.58	.791	3.67	.485	3.74	.337
a. Publish research findings	2.70	.980	3.77	.425	3.77	.430
b. Develop and articulate a research statement	3.03	.823	3.60	.733	3.77	.430
c. Write grant and external funding reports	2.24	.980	3.61	.803	3.70	.541
d. Present new theory and knowledge at national or regional conferences	2.52	.965	3.65	.608	3.70	.465
e. Conduct research	2.43	1.02	3.74	.445	3.78	.424

Note. ^a*n*=60. ^b*n*=31. ^c*n*=27.

While the previous analyses were descriptive in nature and represent responses from each item, this section was designed to explore whether or not demographic factors impacted the perceptions of preparation and importance for four domains by using Multivariate Analysis of Variances (MANOVAs).

Research Question 5: What is the effect of the demographic variables on the perceptions of preparation and importance of faculty roles for faculty positions in the scholarship as related to teaching, application, integration, and discovery?

Seven one-way MANOVAs were conducted to determine the effect of seven demographic variables on the four domains of scholarship in the preparation and the importance areas. Some factors were re-categorized because of relatively low responses from participants, resulting in four demographic variables: comprehensive university, research university, and liberal arts college; age: the range of 18-34 and above 35 years old; work status: faculty and aspiring faculty members; and ethnicity: white and minority.

MANOVA results indicated that ethnicity [Wilks' $\Lambda = .767$, $F(3, 54) = 5.46$, $p < .05$, $\eta^2 = .233$], nationality [Wilks' $\Lambda = .842$, $F(3, 50) = 3.13$, $p < .05$, $\eta^2 = .158$], institution type [Wilks' $\Lambda = .746$, $F(6, 88) = 2.31$, $p < .05$, $\eta^2 = .136$] and academic discipline [Wilks' $\Lambda = .700$, $F(9, 122) = 2.14$, $p < .05$, $\eta^2 = .112$] significantly affected the dependent variables. Detailed multivariate test results are shown in Table 14. The data in Table 15 summarizes the results of the Univariate Follow-up Tests for the three demographic factors because there were no differences between groups in academic disciplines indicated by follow-up tests. As significant differences were indicated on the multivariate procedures, the univariate analysis of variance procedures were performed to identify specific differences. Ten significant differences were

calculated and are reported in Table 16. The findings suggest that international and minority population considered scholarship of application, integration and discovery more important in faculty tasks than the domestic and white population. Although academic discipline had an impact on the three domains of scholarship, the follow-up tests did not show any specific significant differences. Aligned with the findings of existing research studies (Braxton, Luckey, & Helland, 2002; 2006), participants from research and comprehensive universities viewed scholarship of discovery more important than participants from liberal arts colleges. There were no significant differences among all individual characteristics on the preparation of faculty tasks from participants' perspectives. Work status, age, and gender did not affect the importance of faculty tasks based on the results of this study. All significant mean differences calculated by Scheffé Post-Hoc tests are presented in Table 16.

Table 14

Multivariate Tests

Factor	Λ	F	df_1	df_2	p
Work Status	.847	1.059	8	47	.407
Institution Type	.746	2.310	6	88	.041*
Gender	.867	.900	8	47	.524
Age	.649	1.389	16	92	.165
Ethnicity	.767	5.462	3	54	.002*
Nationality	.842	3.129	3	50	.034*
Academic Discipline	.700	2.139	9	122	.031*

Note. *Sig. at < .05 using Holms' Sequential Bonferroni Procedure

Table 15

Significant F-Tests for Univariate Follow-up Tests

Domain	Factor	MS	F	df_1	df_2	p
	<u>Importance</u>					
Application	Ethnicity	1.794	6.505	1	56	.014*
	Nationality	1.905	6.564	1	52	.013*
Integration	Ethnicity	2.662	7.595	1	56	.008*

Discovery	Nationality	1.560	4.096	1	52	.048*
	Ethnicity	1.733	11.640	1	56	.001*
	Nationality	.956	5.610	1	52	.022*
	Institution Type	1.781	5.594	2	46	.007*

Note. *Sig. at < .05 using Holms' Sequential Bonferroni Procedure

Table 16

Post Hoc Results for Four Domains in Importance by Ethnicity and Nationality Categories

Domain	Factor	Compare	Mean Difference	<i>p</i>
<u>Importance</u>				
Application	Ethnicity	White-Minority	-.370	.014*
	Nationality	Domestic-International	-.429	.013*
Integration	Ethnicity	White-Minority	-.451	.008*
	Nationality	Domestic-International	-.388	.048*
Discovery	Ethnicity	White-Minority	-.364	.001*
	Nationality	Domestic-International	-.304	.022*
	Institution Type	Research University – Liberal Arts College Comprehensive University- Liberal Arts College	.514	.006*

Note. *Sig. at < .05 using Holms' Sequential Bonferroni Procedure.

Open Ended Responses

The Future Faculty Career Preparation (FFCP) Survey allowed respondents to submit open-ended responses to provide a more detailed explanation of individual perceptions regarding the most valuable PFF activities for their academic preparation and how PFF assisted in the job search process. Responses to the two open-ended questions were compiled into an Excel document for analysis. After carefully reading those responses for meaning, line by line, the researcher segmented the data into meaningful analytical units (Strauss & Corbin, 1998). During this coding process, inductive codes were generated by the researcher directly for examining the data based on the terms participants themselves use or social science terms as found in the literature (Jonson & Christensen, 2010).

According to Saldana (2008), analysis is a process of seeking patterns in data and ideas that explain why these patterns were there in the first place. Therefore, coding, as the beginning of a pattern, is a method to group data due to the similarities. The act of counting is required to identify codes and patterns in qualitative research (Miles & Huberman, 1994).

Open-ended Question 1-What PFF program activities were the most valuable for your academic preparation?

Of the respondents, 52 out of 62 answered this open-ended question. Based on the definitions of the four domains of scholarship and five faculty tasks for each domain of scholarship, there were six general patterns prevalent in student responses: (a) teaching-focused activities, (b) application-focused activities, (c) integration-focused activities, (d) discovery-focused activities, (e) the professoriate, and (f) job search and hiring. A list of six general patterns with inductive codes, definitions and exemplary quotes is provided in Table 17.

Teaching-focused activities.

Teaching-focused activities—scholarly activities focused on pedagogical practices and improvement and innovation for enhanced student learning—were the most frequent category mentioned by a number of respondents. It included three inductive codes based on the participants' responses: (a) teaching philosophy, (b) pedagogical skills, and (c) microteaching. Teaching philosophy was considered as the most valuable activity for academic preparation, followed by teaching techniques, and then microteaching. These results supported DeNeef's (2002) study that indicated that teaching philosophy was the most important activity related to teaching. Furthermore, there were a variety of answers in terms of teaching techniques in relation to large size classes teaching, classroom management skills, active learning, syllabus or course development, and dealing with problem students. According to Hainline, Gaines, Feather, Padilla,

and Terry (2010), a new form of teaching techniques should be developed for moving students away from the passive learners in traditional teaching methodologies to the learners who are eager to learn through activity, self-direction, and collaboration. Educators need to notice that one teaching approach may no longer fit all learning styles, as well as notice that it is important to “serve multiple roles through interaction with students that include teacher, mentor, and advisor” (Hainline, et al., 2010, p. 7). Therefore, the academic preparation for future faculty in terms of pedagogical skills should integrate with active learning strategies and innovative online learning communities.

In addition to teaching philosophy and pedagogical skills, microteaching was considered highly valuable activity in teaching-oriented scholarship. Most responses related to microteaching indicated that feedback from the peers was very important to improve their teaching skills. As one respondent shared, “the activity that was most valuable to me was presenting a lesson in front of our peers and having them critique us.” PFF programs should encourage this peer-mentoring relationship between participants to enhance their teaching skills.

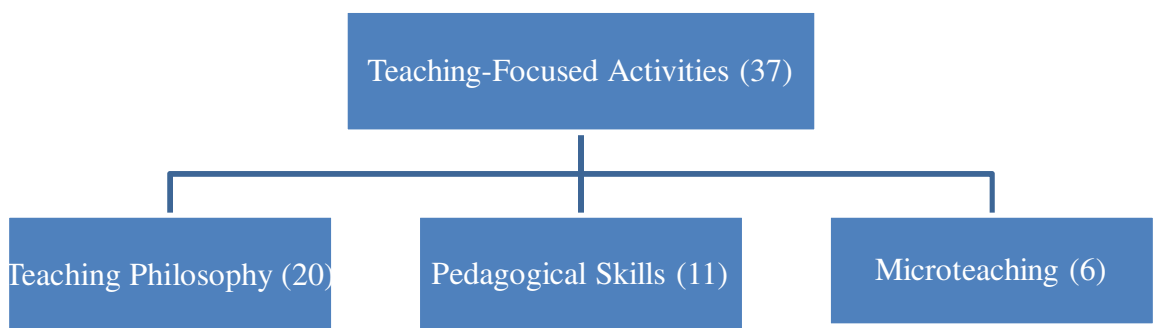


Figure 2. Codes and frequencies of PFF participants’ responses on teaching-focused activities

Table 17
Qualitative Themes, Definitions, and Exemplary Quotes

Qualitative Themes	Definitions	Exemplary Quotes
<u>Discovery-Focused Activities</u>	Scholarly activities focus on basic research.	
Research Statement	Write a summary of research achievements and a proposal for upcoming research.	"The activities that involved writing about what my research interests are and what I intend to do with them were especially helpful. Those activities compelled me to think about why I am considering a career in academia and what I hope I can contribute."
Publication	Prepare for how to write or publish books, journals, or other academic work.	"Learning about publication."
Grant Writing	Learn knowledge and practice of the process of identifying, researching and applying for grants in academia.	"Review grants."
<u>Application-Focused Activities</u>	Scholarly activities focus on the application of disciplinary knowledge and skills, which helps address important social and institutional problems.	
Classroom Technology	Develop new approaches to applying instructional technology for classroom teaching	"Learning about technology for classroom teaching."
Available Resources	Use existing resources in colleges and universities to deal with a problem of practice.	"The way that it was helpful for my academic preparation was by opening my eyes to lots of the techniques and opportunities available for academic professionals. I would have to do a lot of work to identify pertinent questions in my field and viable methods to address these questions."
Service	Gain the knowledge of enlisting intellectual	"I know more about the services in a

Table 17 (Cont.)
Qualitative Themes, Definitions, and Exemplary Quotes

	work in serving or addressing problems of institutions or society.	university. What the difference between universities are at different levels.”
<u>Integration-Focused Activities</u>	Scholarly activities focus on the value of integrating knowledge and inquiry across disciplines and of providing meaning to specialized knowledge in larger contexts.	
Academic Collaboration	Engage with scholars from varying disciplines and different types of higher education institutions.	“I liked meeting with a community of scholars from across campus. I felt that to be most beneficial to my professional and personal development.”
<u>Teaching-Focused Activities</u>	Scholarly activities focus on teaching pedagogical practices and improvement and innovation for student learning.	
Teaching Philosophy	Summarize a systematic and critical rationale that focuses on the important components defining effective teaching and their impact on student learning in a particular discipline in the higher education setting.	“Creating a teaching philosophy and getting feedback from other students.”
Pedagogical Skills	Prepare for knowledge and skills of educating, instructing, or teaching post-secondary students.	“Preparing me for teaching no matter what the size of the class is or what level of students I am teaching.”
Microteaching	Present a short lesson to a small group of peers and receive detailed feedback on their performance.	“The activity that was most valuable to me was presenting a lesson in front of our peers and having them critique us.”

Table 17 (Cont.)

Qualitative Themes, Definitions, and Exemplary Quotes

The Professoriate

Scholarly activities focus on a general review of higher education institutions and faculty responsibilities and roles.

Types of Institutions Identify the different types of institutions in higher education.

"Learning about the different types of institutions and what is expected of new faculty members was very important for me."

Overview of Faculty Roles

Understand the important roles of faculty members.

"This program was also essential in helping me understand the importance of research, teaching, outreach and service."

Tenure and Promotion

Learn how to meet the institutional requirements to receive tenure and promoted opportunities as a junior faculty.

"Information on Tenure & Promotion is very valuable."

Knowledge of Higher Education Institutions

Recognize goals, structure, policies, governance, organization, activities and actions in higher education institutions.

"Understanding the nature of higher education - structure, organization, policies, and governance."

Campus Visit

Visit different types of institutions to interact with scholars academically.

"Visiting at other campuses and interacting with their faculty about ideas, ways they do things, philosophies, etc. enabled me to see different points of view."

Job Search and Employment

Scholarly activities focus on how to find academic jobs in higher education institutions.

Job Search and Interview

Acquire the abilities of finding academic jobs.

"I enjoyed the tutorial of what happens to you when you go for a faculty job interview. Also I liked when young faculty members were invited to share their experience."

Online Portfolio

Create an online showcasing of academic work performed by an aspiring faculty member for

"What was most valuable to me was learning how to develop an online academic portfolio."

Table 17 (Cont.)
Qualitative Themes, Definitions, and Exemplary Quotes

Hiring Process	potential employers in the higher education setting.	Not only had I never done this before but I did not realize how beneficial such things are to one's career development until now. ⁷³
	Learn the steps involves in hiring an aspiring faculty member into higher education institutions.	"In depth knowledge of universities and their hiring processes." ⁷⁴

Application-focused activities.

Scholarly activities that focus on the application of disciplinary knowledge and skills in order to address important social and institutional problems are considered application-oriented activities. The responses revealed three similar aspects: (a) classroom technology, (b) new resources in universities, and (c) service. Five responses showed that it was very important to incorporate innovative technology into classroom teaching; two responses thought dealing with problems in practice could be addressed by using the existing resources on campus; and two reported that it was useful to learn how to enlist intellectual work in serving or addressing problems of institutions or society.

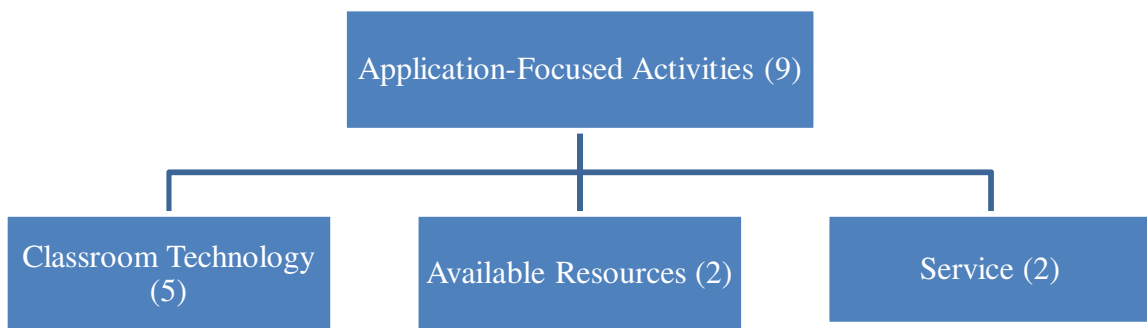


Figure 3. Codes and frequencies of PFF participants’ responses on application-focused activities

Integration-focused activities.

Integration-focused activities highlight the value of integrating knowledge and inquiry across disciplines and of providing meaning to specialized knowledge in larger contexts. All 52 participants mentioned instances of academic collaboration between disciplines in their responses, pointing out that academic collaboration activities were very valuable for preparation for faculty roles and responsibilities. Most of the responses revealed that interactions with scholars outside the discipline was the most helpful approach to understanding academic collaboration. Participants used “discussion”, “talks”, “seminars”, and “guest speakers” to

enhance interactions.

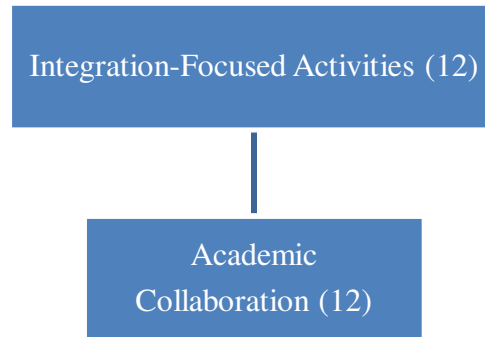


Figure 4. Codes and frequencies of PFF participants' responses on integration-focused activities

Discovery-focused activities.

Discovery-focused activities are defined as scholarly activities focused on basic research, and this pattern included three inductive codes based on the participants' responses: (a) research statement, (b) publication, and (c) grant writing. Among all responses from 52 participants regarding this pattern, twelve of them indicated writing a research statement was the most valuable activity. Two responses mentioned that activities related to publication were very useful for faculty preparation, and the other two responses mentioned activities related to writing and reviewing academic grants were also very important.

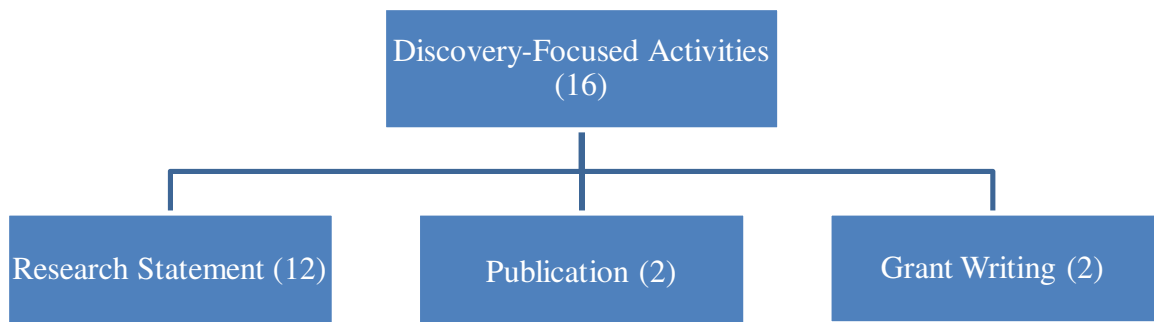


Figure 5. Codes and frequencies of PFF participants' responses on discovery-focused activities

The professoriate

Five codes were summarized into one pattern—the professoriate. All activities regarding these five codes helped PFF participants to understand faculty roles and responsibilities, as well as prepare them for faculty positions. Among the five codes, types of institutions and overview of faculty roles were mentioned most frequently by respondents. As one participant wrote, “the PFF program helped me understand faculty roles and responsibilities beyond teaching and research.” Another also wrote, “Doing research on different types of institutions to determine which one fit my goals was the best.” Learning about higher education institutions and the tenure and promotion process were also influential on participants’ faculty preparation.

Additionally, the importance of interaction with faculty members is notable in learning to work in higher education according to the participants’ responses. A number of respondents thought that it was very helpful to share experiences with faculty members in different kinds of universities. For example, five respondents mentioned visiting other campuses and learning from their faculty were very useful for academic preparation. “Visiting at other campuses and interacting with their faculty about ideas, ways they do things, philosophies, etc. enabled me to see different points of view”. Several respondents thought that asking questions of guest speakers was also very useful. For instance, one participant reported, “The guest speakers were really valuable. It allowed us to ask many questions about specific experiences from professors of varying levels of years in academia. I felt as though they provided honest feedback and told us what different types of faculty positions are really like rather than just what the job description says the position entails.” Faculty members, although they do not directly teach the courses, still play very important roles in preparation for the professoriate. Any kind of informal and formal mentoring and advising from faculty members will accelerate students’ success in being

professional scholars in universities and colleges.

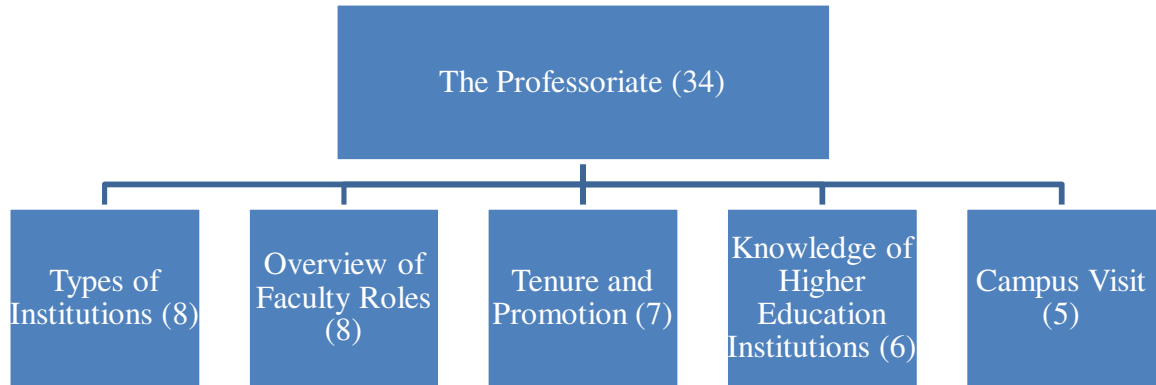


Figure 6. Codes and frequencies of PFF participants’ responses on the Professoriate activities

Job search and employment.

The job search and employment pattern consisted of three similar aspects: (a) job search and interview, (b) online portfolio, and (c) hiring process. From the respondents, “online portfolio” and “inviting current faculty to speak about their job search and hiring experiences” were very valuable activities. Moreover, positive comments such as “a tremendous help”, “most valuable”, and “very useful” were used to describe their perspectives.

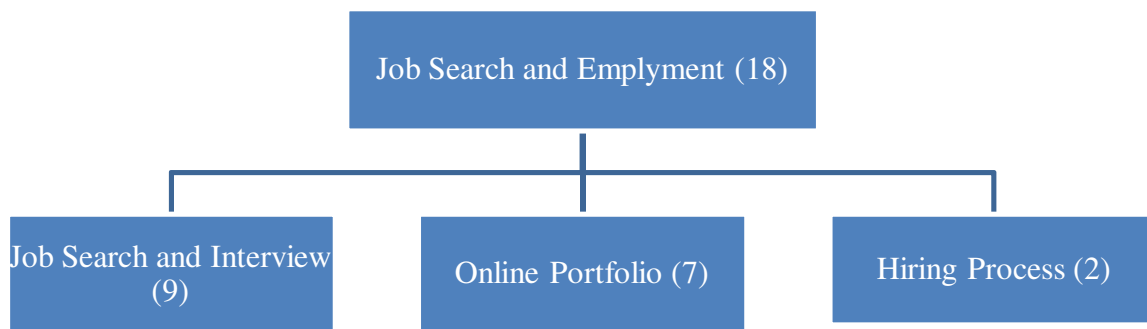


Figure 7. Codes and frequencies of PFF participants’ responses on job search and employment activities

Open-ended Question 2 - In what ways did the PFF program assist you in the job search and process?

According to Nerad, Aanerud, and Cerny (2004), doctoral students needed better assistance with the practical aspects of the academic job search and a number of doctoral students asked for “practical advice on the mechanics of the job search, especially the packaging of oneself in a CV, letters, and interview techniques” (p. 148). Therefore, a second open-ended question was added to this survey to explore whether the PFF program meets students’ expectations in their job search process. Forty-eight out of 62 participants replied. Four of them did not think the PFF program prepared them for job search and process but their advisors and faculty members in their departments helped. However, 71.0% percent of respondents indicated that the PFF program assisted in the process of academic job search. Table 18 lists six aspects the participants received the support from the PFF program which refer to job application, search and interview skills.

Job application orientation.

For some PFF participants, it was very useful to learn about different types of institutions and how to apply for academic positions in each type of institution before they started their job applications. As one respondent shared “the PFF program helped me to understand the different types of institutions, and how to tailor my application to each type.” Additionally, some participants also mentioned it was very important to learn about the job search process, have an idea what they needed to do, and prepare good job applications which the potential employers expect.

Table 18
Qualitative Themes, Definitions, and Exemplary Quotes

Qualitative themes	Definitions	Exemplary Quotes
<u>Job Application Orientation</u>	Students receive directions about how to prepare and apply for academic jobs in different types of institutions.	
Apply for different universities	Students learn how to apply for different types of institutions.	“PFF helped me to understand the different types of institutions, and how to tailor my application to each type. (Research vs. comprehensive)”
Expectations for Quality Applications	Students recognize the expectations from employers for good job applications.	“Having an idea of what to expect in the application process, such as cover letters and teaching philosophies.”
<u>Application Package Preparation</u>	PFF instructors guide and facilitate students thinking, writing, and designing materials and websites for academic job application.	“That was very helpful in already having at least a first draft of all of those before applying for any positions.”
<u>Reality of Job Market</u>	Students understand reality issues in jobs market when searching for jobs.	“I realized how intensive the job hunt can be, and how it is vital to pay close attention to what potential employer is asking you to submit.”
<u>Job Search Skills</u>	Students develop professional skills for searching academic jobs.	“Understanding your motivations and roles you have to play in a given position helps to filter the job search criteria. I applied some of the knowledge and skills I learned through PFF and got the job.”
<u>Job Interview Preparation</u>	Students learn what to expect, how to prepare for online or face-to-face interviews, and relevant interview skills.	“Helped me tremendously in how to properly prepare for a phone interview and face-to-face interview.”
<u>Awareness Building for Job Search and Process</u>	Students are aware and get familiar with job search and process.	“I think it opened my eyes to some of the factors search committees consider when hiring. I’m much more aware of the entire process as well.”

Application package preparation.

Most of the PFF participants thought the application packages created in the PFF program were very helpful for their job search. The most frequent components of the application package included teaching philosophy, research statement, cover letters, resume, and e-portfolio. One student commented that “the writing of a research and teaching statement was a valuable experience. This was especially true because I was applying for positions during the PFF program and these activities forced me to spend time and effort on writing the statements and I received valuable feedback from PFF professors and classmates.” Through activities related to application package preparation, students wrote “that was very helpful in already having at least a first draft of all of those before applying for any positions.” Another student answered “huge help learning about preparing for interviews. I felt very prepared to go out and search for a job now. I didn’t get this anywhere else throughout earning my Ph.D.”

Reality of job market.

When talking about the reality of job market in the PFF courses, participants understood “how intensive the job hunt could be” and “the job market is highly competitive and I need to prepare to submit large numbers of applications even if it isn’t the perfect fit.” However, the PFF preparation provided “some good information on how to market yourself and what to expect once you are on the job market.” Some participants also realized it was important to learn how to prepare for faculty positions in an unfamiliar environment. Moreover, participants mentioned geographic and regional preference and needs from spouse were also very important when they looked for jobs in real job market.

Job search skills.

The training received in the PFF program regarding job search skills taught participants

where to look for jobs, how to filter job search criteria, and the importance of researching potential employers and education institutions. From one student, “initially, it helped to conceptualize who you are in terms of teaching and research, and then what you can and should do as a prospective job seeker. It helped to understand your motivations and the role you have to play in a given position. That helps to filter the job search criteria. I applied some of the knowledge and skills I learned through PFF and got the job.” Some respondents used “extremely” or “tremendously” to describe how PFF preparation helped with their job search skills.

Job interview preparation.

Participants reported that the preparation reviewed in the PFF program helped them be aware of “what appropriate questions to ask”, “what to expect in interview process”, “how to prepare for on-campus interviews”, and “a language set which helped the interviews”. Some students also learned the skills from some PFF activities, for example, “microteaching experience” and “being a guest lecturer”. One participant wrote “the micro teaching lesson was a great experience. I had to give a teaching presentation during a job interview and the micro teaching lesson served as a model for how to develop the teaching presentation.” Another participant felt that “giving guest lecture to other universities helped me with my job talks during my interview.”

Awareness building for job search and process

Students reported that it was the first time for them to be aware and get familiar with job search and process. “I think it opened my eyes to some of the factors search committees consider when hiring. I'm much more aware of the entire process as well.” Another student commented that PFF program “provided an in depth knowledge of expectations for the professorship. Much of the information and knowledge gained in the program was unknown to me prior to completing

the program.”

Summary

Chapter 4 begins with an introduction to the study and is followed by a descriptive analysis of the participants in this research. A number of demographic characteristics such as work status, type of institution, academic discipline, gender, age, ethnicity, and nationality were surveyed and analyzed in this study.

In addition to the demographic questionnaire, participants were also asked to answer two likert-scale questions: (a) how prepared you were for 20 tasks in terms of four domains of scholarship through the Preparing Future Faculty program, and (b) how important each task is for your current or future faculty position. To find out the degree to what the PFF graduates perceive the preparation in the PFF program for faculty tasks and what the importance of those faculty tasks in their current or future faculty positions, descriptive statistics and Independent T-tests were used to a) explore the preparation and the importance of faculty roles from participants' perceptions, and b) compare the importance of faculty roles between graduate students and faculty members groups. Then, Multivariate Analysis of Variances (MANOVAs) were conducted to explore whether there were significant differences in the perceptions of preparation or importance for faculty positions in the four domains of scholarship affected by seven demographic characteristics.

Following the quantitative analyses of these two likert-scale questions, two open-ended survey questions were analyzed by using qualitative methods. These two open-ended questions were: (a) what PFF program activities were the most valuable for your academic preparation, and (b) in what ways did the PFF program assist you in the job search and process. The summary, conclusions and recommendations of this investigation are provided in Chapter 5.

Chapter 5: Summary, Conclusions, Implications, and Recommendations

Introduction

Among the previous studies regarding PFF programs and preparing doctoral students for academic career paths, few used a clear definition of faculty roles to analyze and design academic career preparation programs. There was also a lack of literature examining PFF preparations by comparing current and aspiring faculty members' perceptions in the importance of faculty roles in order to identify realistic worklife guidelines for future faculty. As a result, this study sought to determine how the PFF graduates perceived their preparation for faculty roles and responsibilities in terms of Boyer's (1990) four domains of scholarship, as well as the importance of those faculty tasks in their current or future faculty positions. It explored whether there were different perceptions in the importance of faculty roles between current and aspiring faculty members. Finally, selected factors, such as work status, type of institution, discipline, and ethnicity were considered in this study to identify any differences in the graduates' perceptions of preparation and importance of faculty roles in the PFF program.

The purpose of this study was to examine a Preparing Future Faculty (PFF) program in relation to Boyer's (1990) four domains of scholarship. Participants were from a Southeastern U.S. four-year public university, as well as were preparing to serve in academic faculty roles in the future. The importance of these four scholarships in faculty positions as well as participants' demographic factors, such as work status, institution type, gender, age, ethnicity, nationality and discipline, which might affect PFF graduates' perceptions in preparation and importance of

faculty roles were also discussed. Furthermore, the study sought to identify a model to develop future PFF programs based on a clear definition of faculty roles and to fill the gaps between the aspiring faculty members' expectations for future faculty careers and the realistic day-to-day worklife across the four domains (Golde, 2004).

Research Questions

The following research questions were used in this study:

1. How do graduates perceive the preparation they receive in the PFF program and the importance of faculty roles for their current or future faculty positions in terms of the scholarship of teaching?
2. How do graduates perceive the preparation they receive in the PFF program and the importance of faculty roles for their current or future faculty positions in terms of the scholarship of application?
3. How do graduates perceive the preparation they receive in the PFF program and the importance of faculty roles for their current or future faculty positions in terms of the scholarship of integration?
4. How do graduates perceive the preparation they receive in the PFF program and the importance of faculty roles for their current or future faculty positions in terms of the scholarship of discovery?
5. What is the effect of the demographic variables on the perceptions of preparation and importance of faculty roles for faculty positions in the scholarship as related to teaching, application, integration, and discovery?

Summary

Based on the four domains of scholarship, Austin and McDaniels (2006) presented a conceptual approach to prepare doctoral students to work in an academic career. This framework takes into account “preparation strategies (such as modeling, seminars, conversations, internships, certificates), the scholarly domains within which doctoral students must learn to work and the stakeholders responsible for providing the preparation” (p. 58), and can be used as a tool for conceptualizing “what strategies could be used to prepare doctoral students to work in the four domains of scholarship, which stakeholders might take responsibility for offering these strategies, and what domains of scholarship each strategy might address” (p. 62). By highlighting the three components: four domains of scholarship, stakeholders, and preparation strategies, the framework can be used as a guide to assess what is currently being done to help doctoral students prepare for the academic positions in the four domains and to suggest possibilities for expanding doctoral preparation for faculty roles (Austin & McDaniels, 2006). Particularly, PFF researchers can use this framework to conduct a program audit by using surveys, focus groups, and interviews to decide what professional activities are available to support participants’ academic career development for each domain of scholarship, and where gaps exist between PFF preparations and students’ expectations for their faculty careers.

Findings of this study can be generated to a developmental model by adapting Austin and McDaniels (2006)’s framework, which is presented in Table 19. The first column—Most Prepared Tasks—indicates the most prepared faculty tasks for each domain of scholarship in this PFF program. The second and third columns—Most Important Tasks for Faculty and Students—reveal the most important tasks for future or current faculty positions from aspiring or current faculty members’ perspectives,

Table 19
Developmental Model for PFF Design

Domains	Most Prepared Tasks		Most Important Tasks		Valuable Activities
	Student	Faculty	Student	Faculty	
Teaching	Develop and articulate a teaching philosophy. (M=3.23)	Develop and alter a new course. Engage pedagogical knowledge and skills in teaching. (M=3.74)	Incorporate information technology in the classroom. (M=3.51)	Prepare a new syllabus for a course. (M=3.82)	Teaching philosophy, teaching pedagogy, Microteaching and peer mentoring.
Application	Serve on departmental and institutional-wide committees, i.e., help craft policy, solve problems, or engage in university governance. (M=2.92)	Incorporate information technology in the classroom. (M=3.51)		Create publication to solve the practical problems by using the application of the knowledge and skill of your academic discipline, i.e., presentations and articles. (M=3.61)	Classroom technology, available resources on campus and service.
Integration	Develop or create products (talk, presentation, lecture, article, etc) integrated with an academic discipline outside your own. (M=2.83)	Interpret knowledge in your discipline to others from an academic discipline outside your won or from a non-academic setting. Develop or create products (talk, presentation, lecture, article, etc) integrated with an academic discipline outside your own. (M=3.36)		Develop or create products (talk, presentation, lecture, article, etc) integrated with an academic discipline outside your own. (M=3.41)	Academic collaboration through discussion, talks, seminars, and guest speakers.
Discovery	Develop and articulate a research statement. (3.03)	Publish research findings. (M=3.77)		Conduct research. (M=3.78)	Research Statement, publication, and grant writing.

respectively. The fourth column—Valuable Activities—describes the valuable topics and strategies that can be used for designing relevant programs to prepare doctoral students for future faculty positions based on the four domains of scholarship. Besides the valuable activities in the four domains of scholarship, interaction with faculty members and campus visits in terms of learning institution types, faculty roles, knowledge of higher education institutions, and tenure and promotion are indicated as very helpful for students in preparing for future professional positions. Also, activities related to job application, search, and interview skills are considered useful for participants' academic preparation. This model can be used as a basis for new PFF programs to design their academic career preparation as well as can be used for existing PFF programs to examine their preparation in relation to Boyer's theory. Additionally, the content regarding the most important tasks in this model will be valuable for future PFF participants and other aspiring faculty members to learn what realistic faculty roles should be in their future faculty positions.

Independent T-tests showed that there were no significant differences in the importance of faculty roles between aspiring and current faculty members in the PFF program, which might indicate that there was no gap between aspiring faculty members' work expectations and the realistic worklife as a current faculty member in this PFF program.

Finding regarding the comparison between the preparation and the importance of faculty roles based on the four domains of scholarship in the PFF program is presented in Figure 8. The main reason why respondents perceived the preparation was low because this program did not prepare students for faculty roles in terms of Boyer's four domains of scholarship. Hence, PFF alumni did not experience some of these tasks which contain in the Future Faculty Career

Preparation Survey when they were in the PFF program. Due to this reason, it is not necessary to compare the means of preparation and importance, but results should be compared individually.

Individual factors such as nationality, ethnicity and institution type affected the importance of all faculty tasks in terms of application, integration, and discovery significantly. However, previous studies (Braxton, Luckey, & Helland, 2002; 2006) found that academic discipline and gender to some extent may influence faculty tasks. This study did not concur with these findings. Furthermore, the preparation of faculty tasks in the PFF program for Boyer's four domains of scholarship in this study was not affected by any individual factors.

The results stressed the importance of faculty roles in the four domains of scholarship. PFF participants reported faculty tasks related to the scholarship of discovery should be the most important component in their faculty positions (see Figure 8). Forty percent of PFF alumni currently work or plan to work as faculty members in research universities while the rest of the participants would like to work or currently work for other types of academic institutions such as comprehensive universities, liberal arts colleges, or community colleges. The scholarship of teaching was considered as the second most important role in the professoriate. Yet because of the low internal consistency in this study, further research studies should redesign teaching-focused scholarship activities for reaching a high reliability. The application- and integration-oriented domains received lower means compared to the discovery and teaching domains of scholarship. However, the curves in Figure 8 are parallel each other, which might indicates that the trend of the preparation in this PFF program aligns with the trend of the importance of faculty tasks from participants' perceptions although this PFF program was not designed based on four domains of scholarship.

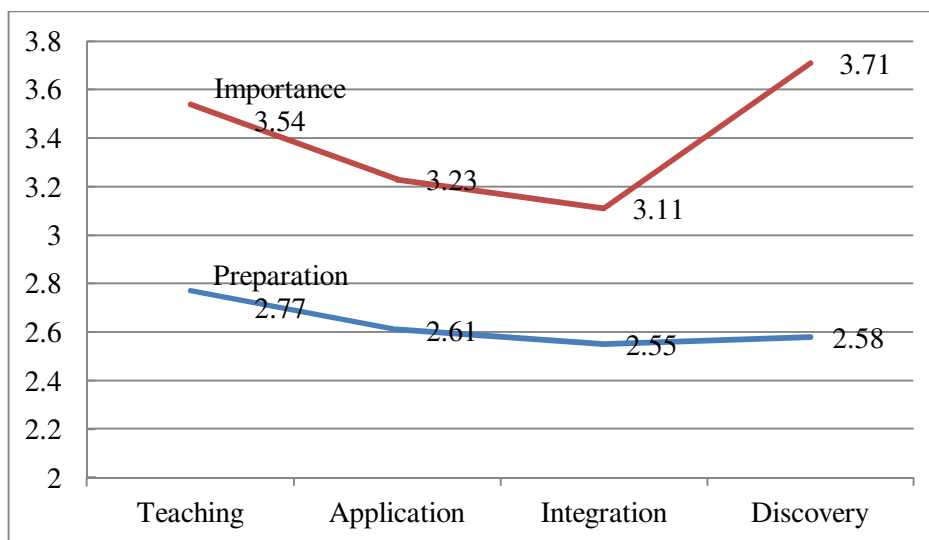


Figure 8. Mean ratings of four domains for the preparation and the importance from participants' perspectives

Additionally, aligned with the findings of previous studies (Anderson & Anderson, 2012; Antonio, 2002; Braxton, Luckey, & Helland, 2002; 2006), this present study also found that research and comprehensive universities considered the scholarship of discovery more important than liberal arts colleges. International and minority PFF participants, no matter whether they were students or faculty members, perceived all faculty tasks in the scholarship of application, integration, and discovery as more important than domestic participants.

Conclusions

Current doctoral education needs to not only train future faculty members for basic research skills, but also prepare them for a full scope of faculty roles that colleges and universities require when employing new professors. The Preparing Future Faculty (PFF) program is one of the professional development programs that can allow this transformation to happen easily and effectively. A number of colleges and universities have created PFF programs to help aspiring faculty members with their academic career preparation. Although there are general rules from the national PFF committee for developing PFF programs, the definition

regarding faculty roles is blurred and the specific topics and activities preparing students for different types of faculty tasks have not been clearly stressed. In this study of graduates from a PFF program at a research university in the southeastern United States, the researcher used four domains of scholarship to define a variety of faculty roles and responsibilities, as well as developed an initial model for guiding and assisting other higher education institutions with their plans of designing or enhancing PFF programs. Colleges and universities may consider this model as a reference before they develop their own programs, and then tailor it based on the institutional or departmental goals and existing resources. Even though the university in this study is a research university, the results are still valuable for all types of colleges and universities because the respondents are currently working or willing to work in varying academic institutions.

Results from this study align with other research (Ferren, Gaff, & Clayton-Pederse, 2002; *Gerdeman*, Russell & Eikey, 2007; Golde & Dore, 2001) that indicated PFF programs benefit doctoral students in terms of understanding faculty roles, realizing the culture of the professoriate and diverse institutions, enhancing one's ability to compete in the job market, and assisting in job application package preparation and job search process. Some respondents recommended the PFF program to their counterparts since they received better academic career preparation than many of their colleagues and some reported that they received job offers because of the training in the PFF program.

There are some practical issues concerning the design of PFF programs that were revealed by this study. Contrary to other findings (Braxton, Luckey, & Helland, 2002; 2006), this study did not find any significant differences by age and academic discipline in participants' preparation or perspectives on the importance of faculty tasks. However, nationality and

ethnicity influenced the importance of faculty tasks from participants' perspectives. International and minority participants perceived all faculty tasks in the scholarship of application, integration, and discovery as more important than domestic and white participants. When discussing the contribution to scholarship from minority faculty in U.S. higher education, Antonio (2002) pointed out that minority faculty expect to work in all types of institutions, compared to their white colleagues who focused on research universities. This finding could be an area of exploration investigating whether aspiring international faculty may have the same expectations as minority faculty regarding their workplaces and whether the work expectations affect their perceptions of the importance of faculty tasks. Moreover, this study to some extent supported Antonio's (2002) finding that minority faculty tend to integrate their professional work with the moral, emotional, and civic development of students.

According to a number of researchers (Diggs, Garrison-Wade, Estrada, & Galindo, 2009; Johson-Bailey & Cervero, 2008; Ku, Lahman, Yeh, & Cheng, 2008; Phelps, 2010), aspiring international and minority faculty members faced more challenges than domestic and white colleagues, and if these challenges become too great, aspiring international and minority faculty may not pursue academic careers. Lack of knowledge about faculty roles and work expectations in different types of institutions may also hinder international and minority faculty from obtaining tenure. There has been a lack of research addressing how to use academic support mechanisms in colleges and universities to aid aspiring international and minority faculty members with their career preparation efforts. Preparing Future Faculty programs, as a key approach to assisting doctoral students with their academic career preparation in current higher education, should consider the academic career development of aspiring international and minority faculty members as a critical element when designing and implementing courses and

activities related to faculty preparation. Furthermore, additional studies regarding the career development for aspiring international faculty members need to be addressed.

Implications

The training provided by PFF programs helps current doctoral education efforts overcome many identified challenges. According to Campbell, Fuller, and Patrick (2005), there were three concerns about today's graduate education: disconnect between doctoral education and future job responsibilities; overemphasis on research; and, lack of mentoring and career preparation. The results of this study indicate that PFF programs help current doctoral education efforts overcome weak preparation in the full range of job responsibilities for those seeking academic careers as future faculty members. A large percentage (86.7%) PFF graduates indicated that the PFF program provided valuable activities for aiding in their preparation of faculty roles in terms of teaching, application, integration, and discovery. Seventy-one percent of the participants identified their satisfaction with the PFF program preparation in their job search process. These findings support DeNeef's findings (2002) that PFF programs affected participants in three ways: a) PFF graduates believed participating in a PFF program made their graduate student experience better; b) PFF participants agreed the training of job search in PFF programs helped them receive better job offers, and c) PFF participants reported that preparation in PFF programs assisted them in starting their faculty lives faster than their faculty peers. Although there were no specific questions in the survey regarding whether the PFF program helped the participants with their job offers or whether the PFF program made any differences between the participants and their faculty peers in work, some responses still mentioned these aspects. For example, one respondent wrote "I applied some of the knowledge and skills I learned through PFF and got the job." Another respondent reported "we learned to have

perspective on the faculty career that most graduate students did not have.” Moreover, some respondents considered the PFF program was the only approach for them to learning faculty roles and skills about academic job search because their academic departments never provided any relevant supports. “[PFF program] provided an in depth knowledge of expectations for the professorship. Much of the information and knowledge gained in the program was unknown to me prior to completing the program.” Also, “I felt very prepared to go out and search for a job now. I didn’t get this anywhere else throughout earning my Ph.D.”

The second implication based on this study is that socialization to higher education is a crucial part of the preparation of future faculty members. Socialization in higher education has been described as the process through which new faculty members come to understand and learn the culture, knowledge, skills, and expectations within the profession, through direct and indirect interaction with members of that institution and the larger academic setting. Tierney (1997) reported that new faculty members learn “how to behave, what to hope for, and what it means to succeed or fail” (p. 4) during this process and they start this process of socializing in higher education and in their academic careers from their doctoral education (Anderson & Anderson, 2012; Austin, 2002; Golde, 2008; Groccia & Miller, 2007; Tierney, 1997). When current doctoral education does not provide a systematic socialization to the academic profession and wide-ranging understanding of faculty roles and responsibilities, PFF programs can present a practical and effective way to strengthen the socialization of aspiring scholars. Many participants in this study mentioned the most valuable opportunities to learn about faculty roles and academic careers were through interacting and communicating with other people who are working or willing to work in academic institutions (Twenty three out of 59 respondents mentioned the importance of interactions and communications). Group discussions, seminars, and guest

speakers were always the best approach to delivering the knowledge and skills in the professoriate to future faculty members. Working with peers and criticizing constructively was also important to improve participants' abilities to become new faculty. Some studies regarding socialization to higher education suggested that a structured and intentional mentoring relationship between current and aspiring faculty may most effectively support doctoral students' academic preparation (Anderson & Anderson, 2012; Campbell, et al., 2005; DeNeef, 2002). The survey in this study did not delve into this specific topic; however, a few respondents reported that their previous experiences of visiting different types of academic institutions helped them becoming more capable in faculty positions because they received the opportunities to "shadow faculty", "interact with them about ideas and learn the ways they do things". Some other respondents also reported that "the discussions" or "the talks" with "the guest speakers" who currently work in academic institutions "were helpful because they gave the perspectives that would not have received otherwise". Due to financial or geographic issues, not every PFF program may be able to create field trips with other types of institutions or invite guest speakers. Yet, by purposefully designing activities to socialize students into higher education settings, the stakeholders of the PFF program can customize the training activities based on its own specific institutional situation.

As discussed earlier, international and minority faculty members are an asset in American higher education institutions, and they provide valuable multicultural resources for the professoriate. Although a number of doctoral students have chosen faculty positions as their future careers in graduate schools, a low percent of international and minority doctoral students want to pursue academic careers because of unknown or negative knowledge of U.S. higher education institutions, poor orientation services to acclimate to new academic environments, or a

lack of academic job preparation (Ku, Lahman, Yeh, & Cheng, 2008; Phelps, 2010). However, once they are taught to think more openly and positively about an academic career and decide to become a faculty member, they can contribute to all faculty roles and responsibilities, as well as expect to draw the connection between the professoriate and the ability to affect change in society (Antonio, 2002). Additionally, it is critical for international and minority faculty members to serve as role models and mentors for doctoral students on campuses, since women constitute almost 60 percent and minorities constitute more than 50 percent of the U.S. population, as well as the increase in the number of international students is changing American higher education's student demographics (McGrann, & Wang, 2010; Szybinski, & Jordan, 2010; Taylor, Apprey, Hill, McGrann, & Wang, 2010). Therefore, training in PFF programs is a key component in doctoral education to assist international and minority doctoral students with their professional development. PFF programs should pay special attention to aspiring international and minority faculty members, offer preparation, collaboration, and support beyond their academic departments for their academic careers, encourage all aspiring faculty to be engaged in promoting diversity, and understand these important implementations regarding the development of aspiring international and minority faculty will be beneficial for the change of the current doctoral education and the culture of the academy.

Recommendations

Based on the results of this study, the following recommendations are offered for other PFF programs. For program instructors and designers, there are five recommendations for future PFF programs. First, according to Boyer (1990), the four domains of scholarship should overlap. Therefore, the designers and instructors of PFF programs should integrate some or all domains of scholarship into one activity when they design the academic preparation. This study provided a

developmental model based on each domain of scholarship, but it does not mean the activities of each domain of scholarship should be separate from each other. Each area should be viewed as an integral component of the program's capacity to attract the best students and provide extensive experiences for them. Second, students are not subjects but participants in professional development programs like PFF. Involving them in interaction activities is important. Students will learn much more effectively and efficiently about academic career preparation through socializing with faculty, peers, and instructors. Third, several specific design issues should be emphasized. Based on financial and geographic issues, it is difficult for some PFF programs to affiliate with other types of institutions or to invite speakers to come to their programs. Hence, online programs or designing using technology, such as using a webinar or connecting with speakers through Skype, might solve these concerns. Fourth, the impact of demographic characteristics on PFF programs should be considered by designers and instructors. For instance, international and minority participants might have different work expectations for their academic preparation from domestic and white participants and working in different types of institutions might be different as a faculty member. Therefore, it is important to think about these differences when designing PFF preparation programs. Fifth, activities regarding job search and interview skills and the knowledge of the professoriate are valuable for aspiring faculty members' academic preparation.

Findings also suggest several recommendations for administrators and other stakeholders in higher education institutions. First, academic institutions should reexamine their tenure and reward systems from the perspective of international and minority faculty members. When most of the international and minority faculty focus on a wide range of faculty roles, it will hinder their enthusiasm if the tenure and reward systems only recognize in research contributions. A

reconsideration of tenure and reward systems in terms of all faculty roles and responsibilities should be addressed by universities and colleges.

Second, faculty and administrators in each academic department should understand the mission of PFF programs, as well as become involved in the PFF experiences. Only through collaboration among all interested parties, can PFF programs be developed as a unique training experience from the existing professional development programs in each academic department. At the same time, based on the training PFF programs provide, each academic department can develop their own academic career training to match the expectations of aspiring faculty in each academic department.

Third, universities as a whole should support PFF programs financially. Although some PFF programs establish and are maintained with less costly activities, universities and colleges should realize the importance of budgetary support for these programs. Without this support, it is difficult to bring students to visit partner institutions or maintain faculty members as mentors for long periods of time. Most of the faculty and instructors are volunteers to teach and help with the programs and the support from universities and colleges will encourage the continuing sustainability of PFF programs.

Further studies need to explore the research questions in this study with a larger sample in order to assist in determining the robustness of this study's findings. The researcher was concerned with the lower-than-expected reliability of the importance of faculty tasks in terms of teaching-oriented scholarship ($\alpha = .416$). Therefore, it indicates that there is room to strengthen the design of the scholarship of teaching in the Future Faculty Career Preparation Survey, and in particular improve the reliability of the teaching-focused scholarship scale. Based on the findings of this current study regarding aspiring international and minority faculty development in

academic careers, more attention should be paid in this field and further discussions can be conducted in order to enhance the career preparation for aspiring international and minority faculty members in Preparing Future Faculty programs. At last, although Independent T-Tests showed that there was no gap between aspiring faculty members' work expectations and realistic worklife as a faculty member, it did not explain whether it was because of this program's preparation or it was because the participants already realized the importance of faculty roles before they attended this PFF program. Therefore, a study investigating participants' perceptions in the importance of faculty roles before and after PFF programs should be designed in the future in order to further examine PFF preparation.

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Appendix 1

Page 1

Hello there!

Although I don't know who you are, I really appreciate from my heart that you open this link and help with my dissertation. Your contribution is very meaningful for my research as well as for future doctoral students who will have the same dreams as yours. Therefore, please try your best to provide as much information as you can and thousands of thanks for your kindness and support!

**Best Wishes,
Chenzi Wang**

1. Please choose your current work status:

- Doctoral Student Postdoc
- Researcher Faculty
- Member University
- Administrator Other
- (Please indicate)

Please choose one from the two statements that describes you more appropriately:

- I am currently a faculty member or planning on being a faculty member in the future
- I am NOT currently a faculty member or NOT planning on being a faculty member in the future

2. Consider your current status (faculty member or aspiring faculty member) and select the type of institution you are currently working at or expect to work at:

- Comprehensive Universities
- Research Universities
- Liberal Arts Colleges
- Community Colleges
- Vocational/Technical Institutions
- Tribal Colleges and Universities
- Other (please indicate)

3. Consider your current status (faculty member or aspiring faculty member) and provide your current position title or anticipated title:

4. Faculty members do a variety of tasks as follows. To what extent do you perceive:

A1. How prepared you were for each task through participation in the Preparing Future Faculty program. Please indicate in the A1 column.

A2. How important each task is for your current or future faculty position. Please indicate in the A2 column.

	A1				A2			
	Excellent	Good	Fair	Poor	Important	Somewhat Important	Somewhat Unimportant	Unimportant
a. Develop and articulate a teaching philosophy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Prepare a new syllabus for a course	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Develop and alter a new course	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	A1				A2			
	Excellent	Good	Fair	Poor	Important	Somewhat Important	Somewhat Unimportant	Unimportant
d. Engage pedagogical knowledge and skills in teaching	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Create unpublished scholarly outcomes or publications related to pedagogical knowledge, development, and classroom research, i.e., method, approach, and materials	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. Incorporate information technology in the classroom	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. Apply your expertise in service to the community beyond campus, i.e., off-campus consultation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h. Develop unpublished scholarly outcomes for dealing with a problem of practice, i.e., seminars, process, and study	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
i. Create publications to solve the practical problems by using the application of the knowledge and skill of your academic discipline, i.e., presentations and articles	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
j. Serve on departmental and institutional-wide committees, i.e., help craft policy, solve problems, or engage in university governance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
k. Review published materials on disciplinary/interdisciplinary topics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
l. Interpret knowledge in your discipline to others from an academic discipline outside your own or from a non-academic setting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
m. Develop or create products (talk, presentation, lecture, article, etc) integrated with an academic discipline outside your own	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
n. Develop or create disciplinary/interdisciplinary products (talk, presentation, lecture, article, etc) for the local or national media	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
o. Develop or create products (talk, presentation, lecture, article, etc) on your discipline for the local community or organization	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
p. Publish research findings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
q. Develop and articulate a research statement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
r. Write grant and external funding reports	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
s. Present new theory and knowledge at national or regional conferences	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
t. Conduct research	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5. What PFF program activities were the most valuable for your academic preparation? Please be as specific as possible (no word limit).

6. In what ways did the PFF program assist you in the job search and process? Please be as specific as possible (no word limit).

Page 2

Background Information

Finally, help us to know a little bit more about you. For each question, check the selection that best applies to you.

1. What is your gender?

- Male
- Female

2. What is your age range?

- 18-25
- 26-34
- 35-54
- 55-64
- 65 or over

3. What is your ethnicity?

- White/Caucasian
- Black/African American
- Hispanic
- Asian
- Native American
- Pacific Islander
- Other (Please indicate)

4. Please indicate your country of nationality?

5. Please indicate your academic discipline?

6. Do you give us permission to have your contact information (i.e., your email address or phone number) for possible follow-up research? We (Dr. Witte and Ms. Wang) maintain strict standards of confidentiality and will not release your identifying information.

- I would like to leave my phone number.
- I would like to leave my email address.
- No, thank you.

Appendix 2

AUBURN UNIVERSITY INSTITUTIONAL REVIEW BOARD for RESEARCH INVOLVING HUMAN SUBJECTS RESEARCH PROTOCOL REVIEW FORM									
For Information or help contact THE OFFICE OF RESEARCH COMPLIANCE, 115 Ramsay Hall, Auburn University Phone: 334-844-5966 e-mail: hsubject@auburn.edu Web Address: http://www.auburn.edu/research/vpr/ohs/									
Revised 03.26.11 – DO NOT STAPLE, CLIP TOGETHER ONLY. Save a Copy									
1. PROPOSED START DATE of STUDY: 2011-12-01									
PROPOSED REVIEW CATEGORY (Check one): <input type="checkbox"/> FULL BOARD <input checked="" type="checkbox"/> EXPEDITED <input type="checkbox"/> EXEMPT									
2. PROJECT TITLE: Using Preparing Future Faculty (PFF) Program to Prepare Doctoral Students for Faculty Roles within Rowan's Four Domains of Scholarship at a Southeastern Public University									
3. Chenzi Wang PRINCIPAL INVESTIGATOR	Graduate Student EFLT DEPT 334-844-8531 PHONE czw0017@auburn.edu AU E-MAIL 1761 Wire Road, Apt. 3-6, Auburn, Alabama 36832 MAILING ADDRESS zeenawong1984@gmail.com FAX ALTERNATE E-MAIL								
4. SOURCE OF FUNDING SUPPORT: <input checked="" type="checkbox"/> Not Applicable <input type="checkbox"/> Internal <input type="checkbox"/> External Agency: _____ <input type="checkbox"/> Pending <input type="checkbox"/> Received									
5. LIST ANY CONTRACTORS, SUB-CONTRACTORS, OTHER ENTITIES OR IRBs ASSOCIATED WITH THIS PROJECT: N/A									
6. GENERAL RESEARCH PROJECT CHARACTERISTICS									
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center; padding: 2px;">6A. Mandatory CITI Training</th> <th style="text-align: center; padding: 2px;">6B. Research Methodology</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;"> Names of key personnel who have completed CITI: Chenzi Wang _____ Dr. Maria Witte _____ CITI group completed for this study: <input checked="" type="checkbox"/> Social/Behavioral <input type="checkbox"/> Biomedical </td> <td style="padding: 5px;"> Please check all descriptors that best apply to the research methodology. Data Source(s): <input checked="" type="checkbox"/> New Data <input type="checkbox"/> Existing Data Will recorded data directly or indirectly identify participants? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Data collection will involve the use of: <input type="checkbox"/> Educational Tests (cognitive diagnostic, aptitude, etc.) <input type="checkbox"/> Interview / Observation <input type="checkbox"/> Physical / Physiological Measures or Specimens (see Section 6E.) <input checked="" type="checkbox"/> Surveys / Questionnaires <input type="checkbox"/> Internet / Electronic <input type="checkbox"/> Audio / Video / Photos <input type="checkbox"/> Private records or files </td> </tr> </tbody> </table>	6A. Mandatory CITI Training	6B. 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Risks to Participants	Please check all descriptors that apply to the participant population. <input checked="" type="checkbox"/> Males <input checked="" type="checkbox"/> Females <input type="checkbox"/> AU students Vulnerable Populations <input type="checkbox"/> Pregnant Women/Fetuses <input type="checkbox"/> Prisoners <input type="checkbox"/> Children and/or Adolescents (under age 19 in AL) Persons with: <input type="checkbox"/> Economic Disadvantages <input type="checkbox"/> Physical Disabilities <input type="checkbox"/> Educational Disadvantages <input type="checkbox"/> Intellectual Disabilities Do you plan to compensate your participants? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Please identify all risks that participants might encounter in this research. <input checked="" type="checkbox"/> Breach of Confidentiality* <input type="checkbox"/> Coercion <input type="checkbox"/> Deception <input type="checkbox"/> Physical <input type="checkbox"/> Psychological <input type="checkbox"/> Social <input type="checkbox"/> None <input type="checkbox"/> Other: _____ *Note that if the investigator is using or accessing confidential or identifiable data, breach of confidentiality is always a risk.
6A. Mandatory CITI Training	6B. Research Methodology								
Names of key personnel who have completed CITI: Chenzi Wang _____ Dr. Maria Witte _____ CITI group completed for this study: <input checked="" type="checkbox"/> Social/Behavioral <input type="checkbox"/> Biomedical	Please check all descriptors that best apply to the research methodology. Data Source(s): <input checked="" type="checkbox"/> New Data <input type="checkbox"/> Existing Data Will recorded data directly or indirectly identify participants? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Data collection will involve the use of: <input type="checkbox"/> Educational Tests (cognitive diagnostic, aptitude, etc.) <input type="checkbox"/> Interview / Observation <input type="checkbox"/> Physical / Physiological Measures or Specimens (see Section 6E.) <input checked="" type="checkbox"/> Surveys / Questionnaires <input type="checkbox"/> Internet / Electronic <input type="checkbox"/> Audio / Video / Photos <input type="checkbox"/> Private records or files								
6C. Participant Information	6D. Risks to Participants								
Please check all descriptors that apply to the participant population. <input checked="" type="checkbox"/> Males <input checked="" type="checkbox"/> Females <input type="checkbox"/> AU students Vulnerable Populations <input type="checkbox"/> Pregnant Women/Fetuses <input type="checkbox"/> Prisoners <input type="checkbox"/> Children and/or Adolescents (under age 19 in AL) Persons with: <input type="checkbox"/> Economic Disadvantages <input type="checkbox"/> Physical Disabilities <input type="checkbox"/> Educational Disadvantages <input type="checkbox"/> Intellectual Disabilities Do you plan to compensate your participants? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Please identify all risks that participants might encounter in this research. <input checked="" type="checkbox"/> Breach of Confidentiality* <input type="checkbox"/> Coercion <input type="checkbox"/> Deception <input type="checkbox"/> Physical <input type="checkbox"/> Psychological <input type="checkbox"/> Social <input type="checkbox"/> None <input type="checkbox"/> Other: _____ *Note that if the investigator is using or accessing confidential or identifiable data, breach of confidentiality is always a risk.								
Do you need IBC Approval for this study? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes - BUA # _____ Expiration date _____									
FOR OHSR OFFICE USE ONLY									
DATE RECEIVED IN OHSR: _____ by _____ DATE OF IRB REVIEW: _____ by _____ DATE OF IRB APPROVAL: _____ by _____ COMMENTS: _____	PROTOCOL # _____ APPROVAL CATEGORY: _____ INTERVAL FOR CONTINUING REVIEW: _____								

Appendix 3

The Inventory of Scholarship

The Scholarship Application

Scholarly Activities

Institutional Service / Academic Citizenship

- . Service on a departmental program review committee
- . Service on a departmental curriculum committee
- . Service on a college-wide curriculum committee
- . Self-Study conducted for one's department
- . Service on a committee engaged in institutional preparation for accreditation review
- . Study conducted to help solve a departmental problem
- . Study conducted to help formulate departmental policy
- . Study conducted to help formulate institutional policy

Service to the Lay Public

- . Introduction of some result of scholarship in a consultation
- . Provision of expert witness or testimony
- . Engagement in consulting off campus

Unpublished Scholarly Outcomes

- . Development of an innovative technology
- . Seminars conducted for laypersons on current disciplinary topics
- . Development of a new process for dealing with a problem of practice
- . Study conducted for a local organization
- . Study conducted for a local nonacademic professional association
- . Study conducted for a local government agency
- . Study conducted to help solve a community problem
- . Study conducted to help solve a county or state problem

Publications

- . An article that outlines a new research problem identified through the application of the knowledge and skill of ones' academic discipline to a practical problem
- . An article that describes new knowledge obtained through the application of the knowledge and skill of one's academic discipline to a practical problem
- . An article that applies new disciplinary knowledge to a practical problem
- . An article that purposes an approach to the bridging of theory and practice
- . An article reporting findings or research designed to solve a practical problem

The Scholarship of Discovery

Unpublished Scholarly Outcomes

- . A paper presented that describes a new theory developed by the author
- . A paper presented that reports the findings of research designed to gain new knowledge
- . A report on research findings to a granting agency

Publications

This list includes only publications associated with the traditional scholar. Such publications best serve the academic system necessary for the dissemination of outcomes or engagement in the scholarship of discovery (Fox, 1985). For Example:

- . A book chapter describing a new theory developed by the author
- . A refereed journal article reporting findings or research designed to gain new knowledge
- . A book reporting findings of research designed to gain new knowledge
- . A book describing a new theory developed by the author
- . A refereed journal article describing a new theory developed by the author

The Scholarship of Integration

Unpublished Scholarly Outcomes

- . A talk on a current disciplinary topic given on a local radio station
- . A talk on a current disciplinary topic given on a local television station
- . A talk on a current disciplinary topic given for a local men's or women's service organization
- . A talk on a current disciplinary topic given for a local business organization
- . A talk on a current disciplinary topic given for a local nonacademic professional association
- . A talk on a current disciplinary topic given for a group of college alumni
- . A lecture on a current disciplinary topic given for a local high school class
- . A lecture on a current disciplinary topic given for a high school assembly
- . A lecture on a current disciplinary topic given at a local community college

Publications

- . A review of literature on a disciplinary topic
- . A review of literature on an interdisciplinary topic
- . A review essay of two or more books on similar topics
- . An article on the application of a research method borrowed from an academic discipline outside one's own
- . A book or chapter on the application of a research method borrowed from an academic discipline outside one's own
- . An article on the application of a theory borrowed from an academic discipline outside one's own
- . A book chapter on the application of a theory borrowed from an academic discipline outside one's own
- . A critical book review published in an academic or professional journal
- . A critical book review published in a newsletter of a professional association
- . An article addressing current disciplinary topics published in the popular press
- . A book addressing a disciplinary/interdisciplinary topic published by the popular press
- . An article that crosses subject matter areas
- . A book that crosses subject matter areas
- . A critical book review published in the popular press
- . A book published reporting research findings to lay readers
- . A textbook published
- . An edited book published
- . An article on a current disciplinary topic published in a local newspaper
- . An article on a current disciplinary topic published in a college or university publication
- . An article on a current disciplinary topic published in a national magazine of the popular press

The Scholarship of Teaching

Scholarly Activities

- . Directed student research projects
- . Preparation of a new syllabus for a course
- . Development of examination questions requiring higher-order thinking skills
- . Development of a set of lectures, learning activities, or class plans for a new course
- . Maintenance of a journal of day-to-day teaching activities
- . Study problems or questions emerging from one's own teaching
- . Construction of an annotated bibliography for course reference
- . A lecture on topics from current journal articles not covered in course readings
- . A lecture on topics from current scholarly books not covered in course readings
- . Development of a new course
- . Development of a new set of lectures for an existing course
- . Introduction of some result of one's scholarship in teaching

Unpublished Scholarly Outcomes

General Pedagogical Development and Improvement

- . Presentation about new instructional techniques to colleagues
- . Development of a collection or resource materials for one's subject area
- . Construction of a novel examination or testing practice

Classroom Research

- . Experimentation with new teaching methods or activities
- . Development of methods to make ungraded assessments of students' learning of course content
- . Trying a new instructional practice and altering it until it is successful

Pedagogical Content Knowledge

- . Development of examples, materials, class exercises, or assignments that help students to learn difficult course concepts
- . Creation of an approach or strategy for dealing with class management problems faced in teaching a particular type of course
- . Creation of an approach or strategy to help students to think critically about course concepts

Publications

General Pedagogical Development and Improvement

- . Publication listing resource materials for a course
- . Publications on the use of a new instructional method

Classroom Research

- . Publication reporting a new teaching approach developed by the author
- . Publication of a method to make ungraded assessments of students' learning of course content
- . Publication on the use of a new instructional practice and the alterations made to make it successful

Pedagogical Content Knowledge

- . Publication on examples, materials, class exercises, or assignments that help students to learn difficult course concepts
- . Publication on an approach or strategy for dealing with class management problems faced in teaching a particular type of course

. Publications on an approach or strategy to help students to think critically about course concepts

Institutionalizing a Broader View of Scholarship Through Boyer's Four Domains:
Braxton, Luckey, Helland – Volume 29. Number 2. pgs:141-146

Appendix 4
The Inventory of Scholarship

The Scholarship Application

Scholarly Activities

Institutional Service / Academic Citizenship

- 1• Service on a departmental program review committee
- 2• Service on a departmental curriculum committee
- 3• Service on a college-wide curriculum committee
- 4• Self-Study conducted for one's department
- 5• Service on a committee engaged in institutional preparation for accreditation review
- 6• Study conducted to help solve a departmental problem
- 7• Study conducted to help formulate departmental policy
- 8• Study conducted to help formulate institutional policy

Service to the Lay Public

- 9• Introduction of some result of scholarship in a consultation
- 10• Provision of expert witness or testimony
- 11• Engagement in consulting off campus

Unpublished Scholarly Outcomes

- 12• Development of an innovative technology
- 13• Seminars conducted for laypersons on current disciplinary topics
- 14• Development of a new process for dealing with a problem of practice
- 15• Study conducted for a local organization
- 16• Study conducted for a local nonacademic professional association
- 17• Study conducted for a local government agency
- 18• Study conducted to help solve a community problem
- 19• Study conducted to help solve a county or state problem

Publications

- 20• An article that outlines a new research problem identified through the application of the knowledge and skill of one's academic discipline to a practical problem
- 21• An article that describes new knowledge obtained through the application of the knowledge and skill of one's academic discipline to a practical problem
- 22• An article that applies new disciplinary knowledge to a practical problem
- 23• An article that purposes an approach to the bridging of theory and practice
- 24• An article reporting findings or research designed to solve a practical problem

The Scholarship of Discovery

Unpublished Scholarly Outcomes

- 1• A paper presented that describes a new theory developed by the author
- 2• A paper presented that reports the findings of research designed to gain new knowledge
- 3• A report on research findings to a granting agency

Publications

This list includes only publications associated with the traditional scholar. Such publications best serve the academic system necessary for the dissemination of outcomes or engagement in the scholarship of discovery (Fox, 1985). For Example:

- 4• A book chapter describing a new theory developed by the author
- 5• A refereed journal article reporting findings or research designed to gain new knowledge
- 6• A book reporting findings of research designed to gain new knowledge
- 7• A book describing a new theory developed by the author
- 8• A refereed journal article describing a new theory developed by the author

The Scholarship of Integration

Unpublished Scholarly Outcomes

- 1• A talk on a current disciplinary topic given on a local radio station
- 2• A talk on a current disciplinary topic given on a local television station
- 3• A talk on a current disciplinary topic given for a local men's or women's service organization
- 4• A talk on a current disciplinary topic given for a local business organization
- 5• A talk on a current disciplinary topic given for a local nonacademic professional association
- 6• A talk on a current disciplinary topic given for a group of college alumni
- 7• A lecture on a current disciplinary topic given for a local high school class
- 8• A lecture on a current disciplinary topic given for a high school assembly
- 9• A lecture on a current disciplinary topic given at a local community college

Publications

- 10• A review of literature on a disciplinary topic
- 11• A review of literature on an interdisciplinary topic
- 12• A review essay of two or more books on similar topics
- 13• An article on the application of a research method borrowed from an academic discipline outside one's own
- 14• A book or chapter on the application of a research method borrowed from an academic discipline outside one's own
- 15• An article on the application of a theory borrowed from an academic discipline outside one's own
- 16• A book chapter on the application of a theory borrowed from an academic discipline outside one's own
- 17• A critical book review published in an academic or professional journal
- 18• A critical book review published in a newsletter of a professional association
- 19• An article addressing current disciplinary topics published in the popular press
- 20• A book addressing a disciplinary/interdisciplinary topic published by the popular press
- 21• An article that crosses subject matter areas
- 22• A book that crosses subject matter areas
- 23• A critical book review published in the popular press
- 24• A book published reporting research findings to lay readers
- 25• A textbook published
- 26• An edited book published
- 27• An article on a current disciplinary topic published in a local newspaper
- 28• An article on a current disciplinary topic published in a college or university publication

29• An article on a current disciplinary topic published in a national magazine of the popular press

The Scholarship of Teaching

Scholarly Activities

- 1• Directed student research projects
- 2• Preparation of a new syllabus for a course
- 3• Development of examination questions requiring higher-order thinking skills
- 4• Development of a set of lectures, learning activities, or class plans for a new course
- 5• Maintenance of a journal of day-to-day teaching activities
- 6• Study problems or questions emerging from one's own teaching
- 7• Construction of an annotated bibliography for course reference
- 8• A lecture on topics from current journal articles not covered in course readings
- 9• A lecture on topics from current scholarly books not covered in course readings
- 10• Development of a new course
- 11• Development of a new set of lectures for an existing course
- 12• Introduction of some result of one's scholarship in teaching

Unpublished Scholarly Outcomes

General Pedagogical Development and Improvement

- 13• Presentation about new instructional techniques to colleagues
- 14• Development of a collection or resource materials for one's subject area
- 15• Construction of a novel examination or testing practice

Classroom Research

- 16• Experimentation with new teaching methods or activities
- 17• Development of methods to make ungraded assessments of students' learning of course content
- 18• Trying a new instructional practice and altering it until it is successful

Pedagogical Content Knowledge

- 19• Development of examples, materials, class exercises, or assignments that help students to learn difficult course concepts
- 20• Creation of an approach or strategy for dealing with class management problems faced in teaching a particular type of course
- 21• Creation of an approach or strategy to help students to think critically about course concepts

Publications

General Pedagogical Development and Improvement

- 22• Publication listing resource materials for a course
- 23• Publications on the use of a new instructional method

Classroom Research

- 24• Publication reporting a new teaching approach developed by the author
- 25• Publication of a method to make ungraded assessments of students' learning of course content
- 26• Publication on the use of a new instructional practice and the alterations made to make it successful

Pedagogical Content Knowledge

- 27• Publication on examples, materials, class exercises, or assignments that help students to learn difficult course concepts

28• Publication on an approach or strategy for dealing with class management problems faced in teaching a particular type of course

29• Publications on an approach or strategy to help students to think critically about course concepts

Institutionalizing a Broader View of Scholarship Through Boyer's Four Domains:
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Appendix 5

Scholarship of Application

- a. Incorporate information technology in the classroom (12)
- b. Apply your expertise in service to the community beyond campus, i.e., off-campus consultation (9, 10, and 11)
- c. Develop unpublished scholarly outcomes for dealing with a problem of practice, i.e., seminars, process, and study (13, 14, 15, 16, 17, 18, and 19)
- d. Create publications to solve the practical problems by using the application of the knowledge and skill of your academic discipline, i.e., presentations and articles (20, 21, 22, 23, and 24)
- e. Serve on departmental and institutional-wide committees, i.e., help craft policy, solve problems, or engage in university governance (1, 2, 3, 4, 5, 6, 7, 8, 9, and 10)

Scholarship of Research

- a. Publish research findings (4, 5, 6, 7, and 8)
- b. Develop and articulate a research statement (PFF Evaluation)
- c. Write grant and external funding reports (3)
- d. Present new theory and knowledge at national or regional conferences (1 and 2)
- e. Conduct research (Survey of DECP)

Scholarship of Integration

- a. Review published materials on disciplinary/interdisciplinary topics (10, 11, 12, 21, 22, 25, and 26)
- b. Interpret knowledge in your discipline to others from an academic discipline outside your own or from a non-academic setting (24)
- c. Develop or create products (talk, presentation, lecture, article, etc.) integrated with an academic discipline outside your own (13, 14, 15, and 16)
- d. Develop or create disciplinary/interdisciplinary products (talk, presentation, lecture, article, etc.) for the local or national media (1, 2, 17, 19, 20, 23, 27, 28, and 29)
- e. Develop or create products (talk, presentation, lecture, article, etc.) on your discipline for the local community or organization (3, 4, 5, 6, 7, 8, 9, and 18)

Scholarship of Teaching

- a. Develop and articulate a teaching philosophy (Survey of DECP)
- b. Prepare a new syllabus for a course (2)
- c. Develop and alter a new course (4, 7, 8, 9, 10, and 11)
- d. Engage pedagogical knowledge and skills in teaching (1, 3, 5, and 6)

e. Create unpublished scholarly outcomes or publications related to pedagogical knowledge, development, and classroom research, i.e., method, approach, and materials (12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, and 29)

Appendix 6

Four Domains of Scholarship	Your Choices
Scholarship of Discovery	
Scholarship of Application	
Scholarship of Integration	
Scholarship of Teaching	

Please
choose
from

From the following 9 items that belong to each domain of scholarship based on your perspective, and then put the item number(s) to the box below.

1. Develop and articulate a teaching philosophy
2. Create a classroom climate inclusive of a diverse population of students and diverse learning styles
3. Collaborate with others in interdisciplinary scholarly work
4. Develop and articulate a research statement
5. Advise students
6. Interpret knowledge in your discipline to others from an academic discipline outside your own or from a non-academic setting
7. Publish disciplinary/interdisciplinary academic work in the popular press
8. Write grant and external funding reports
9. Conduct Research

Thanks so much for your help!

Appendix 7

11/15/2011

Institutional Review Board
Office of Human Subjects Research
Auburn University, AL 36849

Dear IRB Members,

After reviewing the proposed study, “Using Preparing Future Faculty (PFF) Program to Prepare Doctoral Students for Faculty Roles within Boyer’s Four Domains of Scholarship at a Southeastern Public University”, presented by Ms. Wang, an AU graduate student, I have granted authorization for students to be recruited from the Preparing Future Faculty program at Auburn University.

The purpose of the study is to find out what participants’ perceptions and what professional activities are for the preparation of faculty roles, in terms of the four domains of scholarship. Furthermore, compared to the perceptions of former PFF participants who have been working as faculty members, the study will seek for an empirically developmental outcome to fill the gaps between the aspiring faculty members’ idealistic expectations for future faculty careers and the realistic day-to-day worklife across the four domains in this particular PFF program. The different types of institutions, disciplines, and individual characteristics that might affect preparation in the four domains of scholarship will be also discussed. Ms. Wang will conduct the following activities in this specific PFF program: contact PFF participants during the four academic years from 2004-2012 by emails and phones, recruit participants, collect and analyze data from a survey instrument this research will use. It is understood that this project will end no later than December 2012.

To ensure that the students are protected, Ms. Wang has agreed to provide to me a copy of Auburn University IRB-approved, stamped consent document before she recruits participants in our PFF program. To eliminate any risk of coercion, I will not get involved in the process of recruitment and collection. PFF participants who would like to join in this research will be completely voluntary. Ms. Wang has agreed to provide a copy of his study results, in aggregate, to our department.

If the IRB has any concerns about the permission being granted by this letter, please contact me at the phone number 334-844-8530.

Sincerely,

Dr. S. Raj Chaudhury, Associate Director, Biggio Center