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Socializing Future Community College Faculty Doctoral Professional Development and Career Preparation

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ABSTRACT

This study provides empirical evidence that PhD graduates working at community colleges feel less prepared than their counterparts employed in research universities. In addition, we find that perceptions of skills related to research are not predictive of feelings of job preparation for community college faculty. We offer recommendations for doctoral programs to better prepare future faculty for roles outside of the research university that combine research and interpersonal skills. We argue that there is a misalignment between PhD training and community college faculty preparation and that this training should be not considered a zero-sum game between research and all of the skills required to be an effective teacher, advisor, mentor, and college/university citizen. We also discuss the problematic discourse surrounding PhD professional development that fails to account for the diverse needs of the professoriate.

PLAIN LANGUAGE SUMMARY

PhD programs have long been the preparation program for faculty careers centered on research and teaching. However, current faculty members from different institutional types, particularly community colleges, do not feel that their program provided as effective a preparation. This paper provides statistical evidence to show the differences in self-perceived preparation among different institutional types and how PhD programs can work with the community college sector to provide better preparation for this important sector of U.S. higher education.

Introduction

With traditional PhD programs housed in research universities where producing original scholarship remains the centerpiece requirement for the degree, questions remain about how well PhD programs socialize and prepare graduates for the professoriate across different institutional types, particularly where the teaching load is higher and where the student body looks quite different than the institution where faculty received their PhD. As we seek to promote better preparation and development of the professoriate, institutions other than the research university will have to take the lead while being supplied with PhD faculty nearly exclusively from the research university sector. Postsecondary faculty positions continue to be the largest share of employment for PhD degree holders, and PhD education prepares large parts of the U.S. professoriate. According to the U.S. Bureau of Labor Statistics (2023), 47.4% of the postsecondary faculty across institutional types possess a doctorate. Using the Council of Graduate Schools' Understanding PhD Career Pathways for Program Improvement project data, this study explores the relationship between self-reported preparedness for current faculty jobs and

elements of doctoral preparation and current employment situation. This study answers the research questions:

- (1) How does current institutional type relate to PhD alumni's perception of their program's preparation for their current faculty position?
- (2) How do measures of satisfaction of particular skills during the doctoral program relate to PhD alumni's perception of their program's preparation for their current faculty position?
- (3) How do these relationships operate within a subsample of community college faculty and how do they differ from their colleagues in other institutional types?

Understanding how doctoral training relates to faculty development is an important topic of research because doctoral education has traditionally been seen as a training ground for future faculty members at colleges and universities (Austin & McDaniels, 2006a). However, the colleges and universities that employ these PhD graduates are diverse in terms of institutional characteristics, as well as the sociodemographics of the students they serve. While there are over 4,000 degree-granting postsecondary institutions in the United States, only 449 grant doctorates (National Science Foundation, 2021) and many of these doctorate recipients populate the faculty at the other 3,550+ institutions. With this diversity of institutional characteristics plus the set-up and environment for teaching, it is important to examine that if PhD preparation is equally applicable to faculty jobs at any type of institution of higher education. Ultimately, the goal is advancing full participation in higher education across the nation. For instance, community colleges have long been a bastion for providing access to higher education and comprise nearly a quarter of all institutions and more than a third of all undergraduate enrollments (National Center for Education Statistics, 2020). These institutions, however, differ greatly from doctoral granting research universities, particularly in regard to culture around teaching and publishing (Fugate & Amey, 2000; Grubb, 2006; Laabs, 1987) as well as student demographics (Baime & Baum, 2016; Magloire, 2019). In particular, faculty expectations for teaching responsibilities may look very different between colleagues in the same discipline at Los Angeles City College and the University of California, Los Angeles. In fact, researchers have noted that scholarship on the career development of teaching-focused faculty is understudied (Bennett et al., 2018). Faculty in community colleges have been socialized in research universities as doctoral students. Community colleges, however, attract students from diverse financial, cultural and linguistic backgrounds, students for whom college is often one of several competing priorities, learners who are adults with extensive work experience, and learners who have come to college reluctantly – an environment that looks different than what their faculty have known.

Our findings suggest that PhD programs may be underserving prospective faculty members in community colleges compared to their peers at other institutional types. Moreover, we found that PhD professional development still has room to grow in terms of preparing future faculty members in terms of noncognitive skills. Finally, despite the increased attention paid to these interpersonal skills, we found that research skills were still highly predictive of perceptions of job preparation in a general sense, but not among the community college faculty subsample. The findings from this study illuminate where there might be strengths and weaknesses of PhD education in preparing future faculty members for various sectors of postsecondary education.

Literature review

Faculty preparation

Prior studies have examined and identified potential areas for curricular and professional development experiences needed for the preparation of future faculty members as part of their PhD education (Aarnikoivu et al., 2019; Austin & McDaniels, 2006b; Coso Strong & Sekayi, 2018; Golde & Dore, 2001; Morrison et al., 2011; Nyquist & Woodford, 2000; Nyquist et al., 1999). Aspiring faculty members do

not always understand the full range of faculty work including a range of institutional types (including community colleges) and the cultures, missions, and nature of faculty work at these institutions (Austin et al., 2007; Bieber & Worley, 2006). Also, future faculty need skills in communicating with non-traditional audiences and expertise in working with diverse audiences (Austin, 2002), which is likely more pertinent in working for postsecondary institutions with diverse student populations, such as Minority Serving Institutions (MSIs), comprehensive colleges and universities, and community colleges. To address curricular and co-curricular needs toward the preparation of future faculty members, national initiatives such as the Preparing Future Faculty exist (Gaff et al., 2003), though the effectiveness of some of these programs or areas for focus for professional development are not as well examined empirically (Winter et al., 2018). Thus, in this study, we explore PhD degree holders' exposure to doctoral training in particular skills and attributes in relation to their self-reported preparedness for their current postsecondary faculty positions.

Much of the scholarly work on the preparation of future faculty members has been focused on preparing faculty in general (Austin & McDaniels, 2006a; Austin & Wulff, 2004). Working with diverse audiences, the potential experiences and skills needed for community college faculty are unique. For example, greater empathy for and awareness of students' needs, developing positive faculty-student relationships, and enhanced engagement on the campus are skills that community college faculty found beneficial (Jackson et al., 2013; Wood & Turner, 2010). Subject matter expertise, interpersonal and affective skills, and effective teaching skills are also found to be important skills and competencies of community college faculty (Alexander et al., 2012). Career roles of community college faculty change over time from an emphasis on teaching to research or service activities. However, most faculty did not foresee their career path to work in community college because of the heavy teaching focus at community college (Fugate & Amey, 2000). A growing body of research on doctoral education and career pathways in community college is evident in the literature. This research tends to focus on preparing community college leaders or administrators (Hammons & Miller, 2006; Luna, 2010; Townsend & Wiese, 1990). McNair (2009) highlights skills such as organizational strategy, resource management, communication, collaboration, community college advocacy and professionalism as competencies that doctoral programs might develop for community college leaders. Moreover, interacting with the practitioner community and using real-world cases in instruction are important skills that university-based preparation programs should provide in preparing community college leaders (Hammons & Miller, 2006). Although a great deal is known about developing community college leaders, less is known about the role of doctoral education in preparing community college faculty. Community college faculty could benefit from a tiered structure of professional development tied to their own doctoral education that includes a link between a teaching internship while still a doctoral student through mentoring full-time and part-time faculty with a "grow your own approach" (Gibson-Harman et al., 2002).

Doctoral professional development

We isolated 14 types of skills, knowledge, and behaviors identified in the literature as common to doctoral student professional development, divided into research skills and interpersonal skills. Research skills include applying research methodologies and tools, communicating research findings, ethics, and grant writing. Interpersonal skills include cultural awareness, communicating with non-experts, influencing others, and teamwork. We present a summary of these skills with citations in Table 1.

Research on the professional development for graduate students, however, suggests that career skill preparation, professional development and career guidance continues to be inadequate for many doctoral students (Helm et al., 2012). Many doctoral students felt better prepared for research activities compared to other skills such as grant writing (Eissenberg, 2003), teaching (Schermer & Perjessy, 2014; Walker et al., 2008), and leading a team (Heflinger & Doykos, 2016). Despite the efforts to understand professional development in

Table 1. List of knowledge, skills, and behaviors associated with doctoral education.

Research Skills	Selected Citations
Applying research methodologies, tools, and techniques appropriately	Durette et al. (2016), Morrison et al. (2011), Mowbray and Halse (2010)
Communicating ideas clearly and persuasively in writing, such as in journal articles, grant proposals, or reports	Hart Research Associates (2010), Stock and Hansen (2004)
Conducting research in an ethical manner	Denecke et al. (2017), Nyquist (2002)
Critically analyzing and evaluating findings and results	Durette et al. (2016), Morrison et al. (2011), Mowbray and Halse (2010)
Demonstrating a theoretical and practical understanding of your subject area and its wider research context	Durette et al. (2016), Morrison et al. (2011), Mowbray and Halse (2010)
Developing new ideas, processes, or products, which are rooted in research	Klofsten et al. (2021), Morrison et al. (2011)
Grant writing	Eissenberg (2003), Morrison et al. (2011)
Interpersonal Skills	
Awareness of your own cultural values and biases	Borthwick and Wissler (2003), Hart Research Associates (2010)
Communicating ideas clearly and persuasively to a variety of audiences who may not have technical backgrounds about your field of PhD.	Osborn (1997), Rogers (2020), Rudd et al. (2008)
Communicating ideas clearly and persuasively when speaking to others one-on-one or in small groups	Hart Research Associates (2010), Stock and Hansen (2004)
Influencing others, providing direction and encouraging their contribution	Borthwick and Wissler (2003), Denecke et al. (2017)
Using culturally appropriate interpersonal skills	Hart Research Associates (2010)
Valuing others' worldviews	Borthwick and Wissler (2003), Hart Research Associates (2010)
Working constructively with colleagues, acknowledging their contribution	Durette et al. (2016), Manathunga et al. (2009), Morrison et al. (2011), Mowbray and Halse (2010), Wuchty et al. (2007)

Source: (Mitic & Okahana, 2021).

doctoral education, there is limited research that has examined how doctoral students' professional development experience supports their career success, in particular for a career path in community college.

Furthermore, beyond these broad areas of curricular and professional development for future faculty members, there are disciplinary and other socialization contexts that need to be accounted for in the training for future postsecondary faculty. In addition, Gardner and Barnes (2007) found the importance of quality involvement by graduate students in shaping their professional goals and success. The socialization of graduate students occurs within the context of their disciplines and institutional cultures (Gardner, 2010; Gardner & Barnes, 2007). Access to opportunities for involvement and socialization might not be distributed equally among doctoral students (Gardner & Barnes, 2007). Gardner (2008) also argues that the socialization and acculturation of doctoral students into disciplinary and graduate school norms have some consequences, particularly for traditionally underrepresented individuals in doctoral education, for example, students of color, women, older students, students with dependents, and part-time students.

These socialization and experiential factors while in PhD programs have two implications for the current study. First, in some disciplines and doctoral institutions, teaching-heavy positions may be more highly regarded than research-heavy faculty positions, thus, exposure to curricular and co-curricular experiences that enhance one's teaching skills may be encouraged, and vice versa. Second, given that socialization and acculturation into the professoriate for PhD students occurs mostly (and unsurprisingly) at doctoral universities, experiences for "molding" future faculty members for employment at other types of institutions (e.g., master's colleges and universities, liberal arts colleges, and community colleges) might not be readily available. Thus, the contexts of their doctoral institutions and disciplines may have roles in shaping PhD holders' self-reported preparedness for their current postsecondary faculty positions, as well.

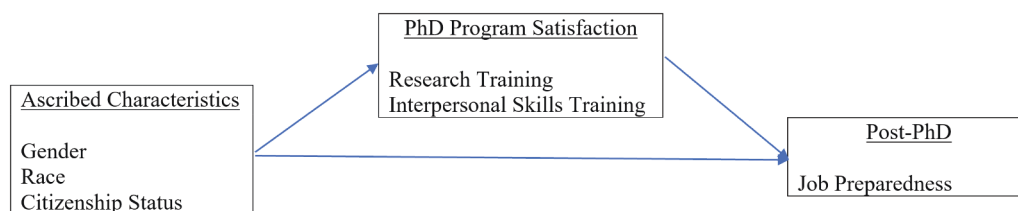


Figure 1. Conceptual model for predicting career preparation for faculty.

Conceptual framework

Conceptually, this study is grounded in Weidman et al. (2001) Graduate Socialization Framework. Inspired by socialization theory, the Weidman et al. framework explores the personal, curricular, and professional development of experiences during their PhD program that prepare students for work in their profession. This framework has been utilized to study the relationship of doctoral study to faculty career development (Austin, 2002; Austin & McDaniels, 2006a). The doctoral program is the time during which students acquire knowledge and formally and informally immerse themselves into faculty socialization. Doctoral programs and faculty play an important role in preparing students for a variety of post-PhD career pathways, including the professoriate across different institutional types.

We employ the model in Figure 1 below based on Weidman et al.'s Graduate Socialization Framework. The model incorporates professional development satisfaction, as measured by alumni satisfaction with their training across a series of knowledge, attributes, and behaviors as well as their ascribed characteristics in predicting post-PhD perceptions of job preparedness.

Methods

Data and sample

The data originated from the Council of Graduate Schools' (CGS) Understanding PhD Career Pathways for Program Improvement project. In Fall 2018 and Fall 2019, CGS partner institutions sent an Alumni Survey to PhD graduates who graduated 3, 8, and 15 years prior to collect data on their perceptions of the PhD experience and employment trajectory (Council of Graduate Schools, 2019, 2020). 3,181 PhD alumni from 57 U.S. institutions whose current primary employment was as a faculty member and who were at least three years beyond their PhD made up the analytical sample. The choice to focus on individuals at least three years beyond their PhD allowed for respondents to have more time to reflect on their position.

The sample was predominantly faculty in research universities (61.4%), followed by master's universities (18.1%), liberal arts colleges (14.9%), and community colleges (5.6%). In terms of gender, there was nearly an even split with men (52.4%) slightly outnumbering women (47.6%) in the sample. In terms of race, ethnicity, and immigration status, White faculty were the largest group (66.0%), followed by international (14.6%), Asian and Pacific Islanders (8.1%), Hispanic (7.7%), Black (3.0%), and American Indian and Alaska Native (0.6%). In terms of broad fields, Arts and Humanities faculty represented 23.5%, followed by Social Sciences (22.8%), Biological and Health Sciences (14.3%), Physical Sciences (8.6%), Engineering (7.7%), Education (6.6%), Mathematics (5.1%), Business (3.1%), with the remaining 8.0% in other fields.

Measures

Preparedness for postsecondary faculty members

The key dependent variable was job preparedness of PhD degree holders. PhD alumni were asked to rate on a five-point ordinal Likert scale (1 – Very poorly; 2 – Poorly; 3 – Well; 4 – Very

well and; 5 – Extremely well) their response to the item “How well did your PhD in [Field] from [Institution] prepare you for your job as [Current job title]?” (Council of Graduate Schools, 2019, 2020).

Skills gained from PhD programs

Participants were asked “How well did your PhD program prepare you in the following knowledge, attributes and behaviors?” They reported the level of preparedness of 14 skills and attributes on a 5-point Likert scale (1-Very poorly, 5-Extremely well). The 14 skills and attributes gained from PhD programs include: (1) Applying research methodologies, tools, and techniques appropriately; (2) Awareness of your own cultural values and biases; (3) Communicating ideas clearly and persuasively in writing, such as in journal articles, grant proposals, or reports; (4) Communicating ideas clearly and persuasively to a variety of audiences who may not have technical backgrounds in your field of PhD; (5) Communicating ideas clearly and persuasively when speaking to others one-on-one or in small groups; (6) Conducting research in an ethical manner; (7) Critically analyzing and evaluating findings and results; (8) Demonstrating a theoretical and practical understanding of your subject area and its wider research context; (9) Developing new ideas, processes, or products, which are rooted in research; (10) Grant writing; (11) Influencing others, providing direction and encouraging their contribution; (12) Using culturally appropriate interpersonal skills; (13) Valuing others’ worldviews; and (14) Working constructively with colleagues, acknowledging their contribution (Council of Graduate Schools, 2019, 2020).

Job sector

The survey participants could choose from a series of 10 sectors that best described the sector of their employer. We retained only individuals who noted that their current primary job was as a member of the faculty within a research university, master’s university, liberal arts college, or community college.

Control variables

We also included other factors that may relate to career preparedness, such as gender, race and citizenship, and field of study. For ethnoracial identity and international status we employed effect codes to compare against the grand mean rather than traditional dummy codes which compare against a reference group, such as White students (Cohen et al., 2003). The advantage of such an approach is to shift the narrative away from reference groups that can be seen as “normal” or “dominant,” a characteristic of critical qualitative analyses (Mayhew & Simonoff, 2015; Stage, 2007; Wolniak et al., 2020). For fields of study, we employed a traditional dummy-coding strategy with Engineering as the reference group. We present full descriptive statistics in Table 2.

Analytical strategies

In addition to descriptive statistics of the overall sample, we tested an ordinal logistic regression model to measure the relationships of the key independent variables (institutional type to address Research Question 1, doctoral preparation to address Research Question 2, and a conditional analysis of institutional type subsamples to address Research Question 3) with the dependent variable of interest: perceptions of faculty preparedness for their current job. When employing an ordinal logistic regression model, researchers must test whether the slopes of the regression lines are parallel (test of proportional odds) (Cohen et al., 2003; Liu & Koirala, 2012; Mitic & Okahana, 2021; Williams, 2016). As is often the case in many studies, the test of parallel lines was statistically significant. One option is to test a multinomial logistic regression model where the dependent variable is categorical. The downside to this approach is that the test loses predictive and interpretive power (Williams, 2016). A better option is the heterogenous choice model that provides appropriate estimations while relaxing the assumption only for parameters that violate the proportional odds assumption (Williams, 2010). Unlike other alternatives such as the generalized ordered logit model, the heterogenous choice model

Table 2. Descriptive statistics of study variables ($N = 3,181$).

	Min	Max	Mean	SD
Institutional Type				
Community College	0	1	5.6%	0.23
Research University	0	1	61.4%	0.49
Master's University	0	1	18.1%	0.39
Liberal Arts College	0	1	14.9%	0.36
Doctoral Preparation in Knowledge, Skills, and Behaviors				
Applying research methodologies, tools, and techniques appropriately	1	5	4.14	0.89
Awareness of your own cultural values and biases	1	5	3.34	1.11
Communicating ideas clearly and persuasively in writing, such as in journal articles, grant proposals, or reports	1	5	3.97	0.97
Communicating ideas clearly and persuasively to a variety of audiences who may not have technical backgrounds about your field of PhD.	1	5	3.55	1.06
Communicating ideas clearly and persuasively when speaking to others one-on-one or in small groups	2	5	3.86	0.93
Conducting research in an ethical manner	1	5	4.10	0.91
Critically analyzing and evaluating findings and results	1	5	4.34	0.80
Demonstrating a theoretical and practical understanding of your subject area and its wider research context	1	5	4.26	0.83
Developing new ideas, processes, or products, which are rooted in research	1	5	3.88	1.03
Grant writing	1	5	2.64	1.17
Influencing others, providing direction and encouraging their contribution	1	5	3.31	1.03
Using culturally appropriate interpersonal skills	1	5	3.31	1.08
Valuing others' worldviews	1	5	3.63	1.06
Working constructively with colleagues, acknowledging their contribution	1	5	3.79	0.98
Dependent Variable: Career Preparation				
How well did PhD prepare you for your current job (faculty)	1	5	4.00	0.97
Control Variables				
Female	0	1	47.6%	0.50
Male	0	1	52.4%	0.50
American Indian/Alaska Native	0	1	0.6%	0.08
Asian and Pacific Islander	0	1	8.1%	0.27
Black	0	1	3.0%	0.17
Hispanic	0	1	7.7%	0.27
International	0	1	14.6%	0.35
White	0	1	66.0%	0.47
Field: Arts & Humanities	0	1	23.5%	0.42
Field: Biology & Health Sciences	0	1	14.3%	0.35
Field: Business	0	1	3.1%	0.17
Field: Education	0	1	6.6%	0.25
Field: Engineering	0	1	7.7%	0.27
Field: Mathematics	0	1	5.1%	0.22
Field: Physical Sciences	0	1	8.6%	0.28
Field: Social Sciences	0	1	22.8%	0.42
Field: Other Fields	0	1	8.0%	0.27

Source: Council of Graduate Schools PhD Career Pathways for Program Improvement. (Council of Graduate Schools, 2019, 2020).

using the `-oglm-` command in Stata provides a single parameter estimate for each covariate, making interpretation easier to understand in theoretical and practical settings while not sacrificing model fit (Williams, 2010).

Results

Descriptive results

We summarize here the self-reported preparation for the participants' current faculty position. Overall, PhD holders rated their preparation as a mean score of 4.00 out of 5 ($SD = 0.97$). The scores did vary, however, by institutional type. PhD holders in research universities reported the highest scores ($M = 4.07$, $SD = 0.92$), followed by master's universities ($M = 4.03$, $SD = 1.00$), liberal arts colleges ($M = 3.85$, $SD = 1.00$), and community colleges ($M = 3.49$, $SD = 1.10$). A one-way ANOVA

demonstrates a statistically significant difference in means ($F(3, 3,180) = 24.57, p < .001$). Post hoc analyses revealed that community college faculty felt that their PhD prepared them less well compared to all other institutional types.

Regression results

Given the difference in means by institutional type, we utilized ordinal logistic regression to control for a host of PhD development experiences and ascribed characteristics. PhD holders working as faculty in community colleges were nearly 57% more likely to report a lower sense of preparation for their faculty position than PhD holders working as faculty in research universities ($OR = 0.43, p < .01$).

When examining the skills whose perception of satisfaction related most highly to feelings of preparation for the current faculty position, skills related to research skills were positively statistically significant: applying research methodologies ($B = 0.50, p < .001$), developing a theoretical and practical understanding of the subject area ($B = 0.12, p < .01$), developing new ideas, processes, or products, which are rooted in research ($B = 0.17, p < .001$), and grant writing ($B = 0.17, p < .001$). Communications skills, including writing for journals ($B = 0.25, p < .001$) and for non-technical audiences ($B = 0.13, p < .01$) were also statistically related to faculty job preparation. Intercultural and interpersonal skills were mixed: only influencing others and providing direction and encouraging their contribution ($B = 0.22, p < .001$) was positively related to job preparedness. We present the full multivariate results in [Table 3](#).

When considering the community college subsample by itself, we found that unlike the full sample or the other three institutional type subsamples, none of the 14 skills were predictive of feelings of job preparation. In fact, the only main effect revealed that Black community college faculty were 3.5 times more likely to report higher levels of doctoral preparation for their faculty position than their White counterparts ($OR = 3.55, p < .05$). When comparing these relationships across the four institutional subsamples, we found that this relationship was significantly stronger when compared to Black faculty in master's and research universities. In addition, community college faculty in Arts & Humanities felt less prepared than their peers in liberal arts colleges, while community college faculty in Education felt less prepared than their counterparts in liberal arts colleges and research universities. We present the main and conditional effects of the community college faculty subsample in [Table 4](#).

Limitations

The results above must be interpreted considering several limitations with the survey instrument and resulting dataset. First, the dependent and main independent variables are self-reported measures. Self-reported data can be problematic due to social desirability bias where respondents may inflate (Phillips & Clancy, 1972) or exaggerate (Brenner & DeLamater, 2016) the role of their PhD preparation in their current position. These biases represent a threat to the validity of responses beyond the control of the research team.

Second, there are several institutional factors for which we could not control, most notably institutional or PhD program prestige. As Warshaw et al. (2017) note, PhD program reputation is associated with the first post-PhD institution at which the graduate is employed while institutional reputation is linked with research productivity and salary. Together, these factors could provide additional explanation for how well the PhD prepared participants for their faculty position that were beyond the scope of this study.

Third, the length of time spent teaching during PhD studies may also be an unexplained factor not controlled in this study. For example, in some fields where the teaching of undergraduate students is more common than others (e.g., the humanities versus biology), such preparation may influence whether the graduate is prepared for the role of being a sole instructor. At the same time, however, because nearly all PhDs are earned at the same select group of institutions, teaching in community

Table 3. Estimated main effects predicting faculty job preparation ($N = 3,181$).

Predictor	<i>B</i>	<i>OR</i>	<i>SE</i>
Sector of Faculty Employment			
Master's University	0.00	1.00	0.10
Liberal Arts College	−0.11	0.90	0.10
Community College	−0.83	0.43**	0.16
Doctoral Preparation in Knowledge, Skills, and Behaviors			
Applying research methodologies, tools, and techniques appropriately	0.50	1.65**	0.05
Awareness of your own cultural values and biases	0.12	1.12	0.05
Communicating ideas clearly and persuasively in writing, such as in journal articles, grant proposals, or reports	0.25	1.28**	0.05
Communicating ideas clearly and persuasively to a variety of audiences who may not have technical backgrounds about your field of PhD	0.13	1.14*	0.05
Communicating ideas clearly and persuasively when speaking to others one-on-one or in small groups	0.03	1.03	0.05
Conducting research in an ethical manner	0.08	1.08	0.05
Critically analyzing and evaluating findings and results	0.12	1.13	0.06
Demonstrating a theoretical and practical understanding of your subject area and its wider research context	0.18	1.20*	0.06
Developing new ideas, processes, or products, which are rooted in research	0.17	1.19**	0.04
Grant writing	0.17	1.18**	0.04
Influencing others, providing direction and encouraging their contribution	0.22	1.24**	0.04
Using culturally appropriate interpersonal skills	0.14	1.15	0.06
Valuing others' worldviews	−0.08	0.92	0.05
Working constructively with colleagues, acknowledging their contribution	0.11	1.12	0.05
Control Variables			
Female	−0.24	0.78*	0.07
American Indian/Alaska Native	−0.12	0.89	0.47
Asian and Pacific Islander	−0.21	0.81	0.13
Black	−0.02	0.98	0.20
Hispanic	0.10	1.10	0.14
International	−0.01	0.99	0.11
Field: Arts & Humanities	−0.25	0.78	0.15
Field: Biology & Health Sciences	−0.27	0.76	0.24
Field: Business	0.51	1.66	0.24
Field: Education	−0.10	0.91	0.19
Field: Mathematics	0.08	1.09	0.20
Field: Physical Sciences	−0.13	0.88	0.17
Field: Social Sciences	−0.06	0.94	0.15
Field: Other Fields	0.01	1.01	0.18
Model Fit (<i>McFadden's-R</i> ²)		0.177	

Source: Council of Graduate Schools PhD Career Pathways for Program Improvement.

(Council of Graduate Schools, 2019, 2020).

"OR" represents estimated Odds Ratios ($Exp(B)$). Reference categories are Job Sector: Research University = 0; Gender: Male = 0; Race/Ethnicity: White = 0; Field: Engineering = 0 * $p < .05$ ** $p < .01$ *** $p < .001$.

colleges and liberal arts colleges may be very different than their PhD institution in terms of class sizes, student demographics, student preparation for postsecondary education, and institutional resources for teaching. Our study was not able to control for all these differences.

Fourth, the variable used for community colleges does not account for the heterogeneity of the types of two-year institutions – rural, urban, suburban, and multi-campus – that have differences in demographic composition, funding realities, and faculty recruitment and retention. In particular, not all faculty in community colleges possess a doctoral degree so these findings may not be applicable to all faculty in community colleges since our sample is only includes members who earned a PhD.

Discussion

The study offers insights into potential areas of curricular and co-curricular training opportunities to better socialize PhD students and graduates who pursue postsecondary faculty positions at community colleges. Although prior research suggests that community college faculty are motivated by research, teaching, and professional development (Hardré, 2012; Wallin, 2003), our findings suggest that their

Table 4. Estimated main and conditional effects predicting community college faculty job preparation ($N = 177$).

Predictor	<i>B</i>	<i>OR</i>	<i>SE</i>
Doctoral Preparation in Knowledge, Skills, and Behaviors			
Applying research methodologies, tools, and techniques appropriately	0.37	1.44	0.24
Awareness of your own cultural values and biases	−0.12	0.89	0.21
Communicating ideas clearly and persuasively in writing, such as in journal articles, grant proposals, or reports	0.00	1.00	0.23
Communicating ideas clearly and persuasively to a variety of audiences who may not have technical backgrounds about your field of PhD	0.05	1.05	0.19
Communicating ideas clearly and persuasively when speaking to others one-on-one or in small groups	0.32	1.37	0.22
Conducting research in an ethical manner	−0.14	0.87	0.24
Critically analyzing and evaluating findings and results	0.08	1.08	0.28
Demonstrating a theoretical and practical understanding of your subject area and its wider research context	0.28	1.32	0.25
Developing new ideas, processes, or products, which are rooted in research	0.13	1.13	0.19
Grant writing	0.09	1.09	0.18
Influencing others, providing direction and encouraging their contribution	0.29	1.34	0.22
Using culturally appropriate interpersonal skills	0.24	1.27	0.24
Valuing others' worldviews	0.05	1.05	0.24
Working constructively with colleagues, acknowledging their contribution	0.12	1.13	0.21
Control Variables			
Female	−0.18	0.83	0.32
American Indian/Alaska Native	−0.37	0.69	1.78
Asian and Pacific Islander	−0.31	0.73	0.72
Black	1.27	3.55 ^{*m r}	0.63
Hispanic	−0.06	0.94	0.47
International	0.72	2.06	1.55
Field: Arts & Humanities	−0.96	0.38 ^l	0.64
Field: Biology & Health Sciences	−0.14	0.87	0.72
Field: Education	−1.12	0.33 ^{l r}	0.79
Field: Physical Sciences	−0.13	0.88	0.76
Field: Social Sciences	0.42	1.53	0.72
Field: Other Fields	0.97	2.64	0.90
Model Fit (<i>McFadden's-R</i> ²)		0.199	

Source: Council of Graduate Schools PhD Career Pathways for Program Improvement (Council of Graduate Schools, 2019, 2020).

"OR" represents estimated Odds Ratios ($Exp(B)$). Reference categories are: Gender: Male = 0; Race/Ethnicity: White = 0; Field: Engineering = 0.

Field: Business and Field: Mathematics were excluded due to no observations present.

* $p < .05$ ** $p < .01$ *** $p < .001$.

^mEstimated effect is significantly ($p < .10$) different from Master's College/University estimate.

^lEstimated effect is significantly ($p < .10$) different from Liberal Arts College estimate.

^rEstimated effect is significantly ($p < .10$) different from Research University estimate.

research training is not directly related to their perceptions of job preparation. The descriptive and multivariate results indicate that PhD programs are not preparing their graduates for faculty positions in community colleges compared to their peers who go on to research universities. The differences in job responsibilities (the balance between research and teaching; Austin et al., 2007; Bieber & Worley, 2006) point to the need to improve teaching preparation. At the same time, community colleges enroll the most diverse student body in terms of sociodemographic characteristics (race, English proficiency, age, disability, veteran status), educational preparation, motivations, and goals (Austin, 2002). We discuss implications of these findings that point to the need for iterative career planning and professional development throughout doctoral study as well as opportunities to teach and reflect on experiences in the community college sector while still a doctoral student.

Misalignment between PhD training and community college faculty preparation

Our finding that community college faculty, while holding all other factors constant, were less likely to feel that their PhD training prepared them for their current faculty position underscores the need for more targeted programs that prepare students for these faculty jobs. If PhD programs consider

community college faculty roles as potential career outcomes for their graduates, then doctoral training must consider the employment needs of sectors beyond the research university. Although much has been written about career diversity in terms of positions outside of academia (Mathur et al., 2018; Sharmini & Spronken-Smith, 2020), not all jobs within academia – even within the faculty profession – are the same. In fact, more “elite” parts of academia have not considered community colleges as a part of higher education, rather an extension of secondary education, and therefore community college faculty are not qualified (Barrington, 2022). Job responsibilities and the accompanying pressures vary even among tenure-track junior faculty. For example, PhD students are often instructed about the “publish or perish” mantra that awaits them as junior faculty with the assumption that students would enter a research university (Laabs, 1987). Community college faculty, however, may research as they wish but their tenure review may be more heavily focused on teaching, mentoring (including the cultural taxation for many faculty of color; Martinez et al., 2017), and service activities that increase the workload.

An obstacle to preparing community college faculty is the fact that very few PhD holders have personal experience as community college students. The National Student Clearinghouse Research Center (2017) found about 11% of PhD recipients in 2016–2017 entered higher education in a community college and less than 6% had an associate’s degree. Many PhDs go on to teach at institutions that do not look like their PhD granting institutions – or even where they earned their undergraduate degrees. However, less than 20% of PhDs have attended a community college (National Science Foundation, 2021). Community colleges are often more diverse in terms of ethnoracial composition, lower socioeconomic status, and first-generation students compared to doctoral granting research universities (Magloire, 2019). Because the community college sector is still unknown to many PhDs, graduate programs must be more intentional in developing training for graduates that will teach in these institutions. PhD students can be encouraged to teach courses during the latter stages of their program at the local community college as these institutions often require only a master’s degree to be the sole instructor of record. The Maryland Alliance for Graduate Education and the Professoriate (AGEP)’s Professors-in-Training program provides doctoral students the opportunity to teach at four community colleges in the area mixed with reflective seminars aimed at preparing future community college faculty (Maryland Alliance for Graduate Education and the Professoriate, 2016). The CUNY Humanities Alliance (2022), supported by The Andrew W. Mellon Foundation, connects doctoral students with CUNY community colleges for teaching-focused experience. These practical experiences, along with reflective professional development, can better help hone not only the skills, but perhaps an appreciation for teaching in the community college sector. For those who find a particular passion for teaching and mentoring, especially in the broadening of access and participation in postsecondary opportunities, the community college sector offers rewarding careers.

Another implication of our finding is the need to reexamine our models and assumptions of evaluating PhD programs for career success. Our full sample regression model found that the 14 skills we tested were highly correlated with faculty job preparation in research universities. But when we tested the same 14 skills in the community college faculty subsample, not a single skill was associated with job preparation. We believe that future exploration of faculty preparation for the community college sector should test other skills that are important to working in community colleges and working with diverse undergraduate student bodies. These skills include uplifting students from minoritized backgrounds and activism (Blake, 2018; Gasman, 2016). Current PhD education models and research into this skill training remain woefully underdeveloped at this stage. Further studies should consider a more expansive and inclusive list of skill sets to measure skill development outcomes of doctoral education.

Researcher development and the realities of community college faculty life

For those who believe the PhD should remain a research-oriented degree true to its historical roots, our findings should assuage any fears that an additional focus on interpersonal skills would diminish

the focus on research training. We observe that PhD graduates recognize the connection between applying research methodologies, tools, and techniques and their level of preparation for their current faculty position. In fact, faculty consistently rated research skills higher than interpersonal skills. Some may believe that research skills gained from doctoral training are needed only to conduct traditional academic research, predominantly the focus of faculty roles at research universities. But our finding from the community college subsample which did not show significant relationships between research-related skills and job preparation demonstrates a disconnect between PhD preparation and the motivations of community college faculty. We know that many community college faculty are motivated to conduct research (Hardré, 2012), but the realities of the position such as time constraints due to teaching responsibilities (Chen Musgrove et al., 2022) may explain why community college faculty feel that their PhD or particular aspects of their training did not prepare them for their position.

Moreover, having research opportunities for undergraduates in community colleges is particularly important for promoting postgraduate opportunities in STEM (Hewlett, 2018). Because of the importance of undergraduate research opportunities, expanding these opportunities with faculty who are well-trained in research can help expand the pipeline to graduate school for low-income and minoritized students, especially in institutions like community colleges where they are over-represented (Martinez & Elue, 2020).

While we argue this type of skills training is not a zero-sum game, we acknowledge here and elsewhere (Mitic & Okahana, 2021) that PhD faculty and program directors on the ground may feel a competition for time and resources between “traditional” outcomes and these modern skills indicative of diverse post-PhD career pathways. The dissertation must remain the primary academic exercise to receive the PhD and requires the development and mastery of knowledge creation skills whereas communication skills become more relevant post-PhD. Participants’ affirmation that applying research skills is associated with their career preparation demonstrates that scholarly acumen is not being devalued while PhD programs attempt to modernize their delivery and outcomes. Despite the lack of a statistically significant finding between research skills and job preparation, we cannot discount prior research that shows the importance of research to some community college faculty (Chen Musgrove et al., 2022; Hardré, 2012).

To better understand the start of the faculty socialization process, future work should further link these perceptions to the impressions of the students they serve. In addition, there is a need to dive deeper into the community college sector as the sample contained less than 10% of faculty working in that sector whereas over a third of students are enrolled in community colleges in the U.S. As the student body continues to become more diverse in terms of race, class, immigration status, and life experiences (Baime & Baum, 2016), community colleges will require teaching faculty with strong graduate training to become adept in the classroom (Magloire, 2019).

Ways to develop these skills include intentional and iterative planning and preparation and partnerships between community colleges and research universities. An Individual Development Plan (IDP) established between advisors and students can be used to assess career options and set goals related to skills growth. Many disciplinary societies and academic institutions have created resources for doctoral students (American Psychological Association, 2020; University of California, Berkeley, 2020) to use. IDPs are best used in an iterative fashion, drawn up early in doctoral study and updated on an annual basis. While teaching assistant (TA) positions offer practical classroom experiences, intentional reflective professional development can help develop stronger teachers who can meet the needs of the study body.

Community college-research university partnerships can provide opportunities for PhD students to experience the community college sector and address any stigmas they have encountered during their studies. Preparing Future Faculty (PFF) programs can help students learn more about the experience and responsibilities for community college faculty as well as the different missions and student population in community colleges (Adams, 2002; Gaff et al., 2003). For example, Iowa State University partners with Des Moines Area Community College

to offer these opportunities (Iowa State University, 2018). Outside of formal PFF programs, community college-research university partnerships can introduce PhD student instructors into community college classrooms to not only strengthen teaching skills but also providing opportunities to work with a student population that is typically more diverse than their home institution (Wilson, 2021). Intentional planning to include these employment opportunities during the PhD program can help address the stigma that community colleges are not really higher education and open additional employment possibilities post-graduation. Such pre-service preparation, however, should also be coupled with in-service preparation and mentoring to acclimate community college faculty to their positions and student population (Bholat, 2023).

Conclusion

Future research should continue to examine the factors that explain perceptions of faculty preparation. Factors such as program prestige not considered in this study but offer a way to build off the findings presented here. The findings of this study, however, provide some of the first empirical evidence that PhD programs may not be adequately preparing graduates for faculty careers in the community college sector. We recommend that programs design Individual Development Plans (IDPs) and community college-research university partnerships to prepare graduates for a diversity of careers that not only includes industry, government, and nonprofits, but for the heterogeneity of institutions within higher education. Given the differences between research universities, regional/master's universities, liberal arts colleges, and community colleges, the PhD degree (largely a product of the research university) can be more flexible in terms of its professional development opportunities without sacrificing rigorous research training. Given the diverse student body and large proportion of students that attend community colleges, better PhD preparation for faculty can help advance full participation of the nation's undergraduate population while offering better career outcomes for our faculty.

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Data availability statement

Qualified researchers may obtain a de-identified version of the dataset by making a request to the Council of Graduate Schools.

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