

Graduate student diversity, equity and inclusion professional development

Diversity,
equity and
inclusion

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Abstract

Purpose – Recent research on graduate students' diversity, equity and inclusion (DEI) socialization found that graduate colleges play a role in supporting graduate students' DEI professional development (Perez *et al.*, 2020), but more studies are needed about how graduate colleges facilitate DEI socialization. One graduate college at a large, selective, research-intensive, public university in the Midwestern US created a graduate certificate for professional development in DEI to expand graduate students' capacities to contribute to inclusion and equity in higher education. The purpose of this multi-method program evaluation is to assess whether the certificate program created significant learning about DEI and developed intercultural competence among graduate students.

Design/methodology/approach – The authors rely on multiple methods to evaluate the impact of the professional development DEI certificate. First, the authors used the Intercultural Development Inventory (IDI) pre and postassessment to measure the growth of participants in the first three years of the program. Second, the authors designed a reflection tool to assess significant learning after each component of the program. Finally, we conducted focus groups with graduates of the program to understand what program components were most valuable for DEI-related significant learning.

Findings – The authors found that the DEI professional development program increased students' intercultural competence as measured by the IDI. Students reported perceptions of significant learning in every domain of learning we assessed using a self-reflection tool and in focus groups.

Originality/value – To the best of the authors' knowledge, this is the first study that demonstrates how graduate colleges contribute to DEI socialization by preparing graduate students to interact across differences and contribute to inclusive climates both within and beyond academe.

Keywords Professional development, Program evaluation, Graduate student socialization, Diversity, equity and inclusion

Paper type Case study

Introduction

USA higher education leaders have urged institutions of higher education to create more inclusive and equitable learning environments and to better support graduate students in developing the skills necessary to grapple with a diversity of experiences and ideas as part of their graduate training. For example, in their vision for science, technology, engineering and mathematics (STEM) education for the 21st century, the National Academies of Sciences called

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for institutional action to promote more inclusive and equitable learning environments (NASEM, 2018). Employers – both within and beyond academe in the USA – now expect graduates to be trained to work skillfully across differences. Within the academy, diversity statements are increasingly requested of US faculty job applicants. The increase in such requests for diversity statements reflects a desire for future faculty to bring a demonstrated commitment to diversity, equity and inclusion (DEI). Similarly, US employers outside academe are also seeking employees across all disciplines who are skillful at working across differences. For example, in 2021, the National Association of Colleges and Employers added “Equity and Inclusion” to their list of critical career readiness competencies based on feedback from US employers (Fernandez, 2021).

Amidst national calls for reform in US graduate training, several professional organizations have also called for an articulation of core competencies for all graduate students. Many of the proposed core competency frameworks include skills related to diversity and inclusion. For example, the US Council of Graduate Schools noted in their report on professional development for STEM graduate students that there:

[. . .] is a growing trend in developing cultural competency and intercultural teamwork skills for a diverse workforce and in preparing graduate students to see career skills development as life-long process as opposed to one-time preparation for job placement (Denecke *et al.*, 2017, p. 10).

Similarly, in the humanities, the American Historical Association includes “collaboration” as one of five key skills for historians, which includes working across differences with those who might not share one’s worldview or experiences (Wilson, 2016).

Most recently, in the wake of the national protest movement to address anti-Black systemic racism in the USA in 2020, university presidents and disciplinary professional organizations made public statements recommending that university and college leaders address the inequitable structures that reproduce white supremacy within US higher education. Students and faculty called upon US postsecondary institutions to deepen their commitments to DEI with concrete steps to advance greater equity and inclusion (e.g. mandatory DEI training for college instructors, curriculum requirements for coursework related to race and social justice, etc.). Perez *et al.* (2020) note that it is essential across all disciplines and fields to prepare scholars “who are equipped to interact across differences and to address societal challenges in service of creating a more just world” (p. 2). As future leaders within and beyond the professoriate, graduate students must be prepared to promote equity and inclusion both in their current roles as scholars-in-training and in their future workplaces.

Despite these calls for reform, academic departments rarely provide graduate student training on DEI. Rather, centralized graduate colleges frequently offer professional development related to DEI for many US graduate students (Perez *et al.*, 2020). In the US context, many universities have centralized graduate colleges that provide administrative and student support services to graduate students, including, in many cases DEI professional development programs. This study is the first exploration of how the US graduate college can respond to national calls for institutional action to promote more inclusive and equitable learning environments. Our research questions for this study were:

RQ1. Does the graduate college contribute to significant learning related to DEI?

RQ2. What components of DEI-related training promote significant learning?

We explore how graduate college can contribute to significant learning and student success by training graduate students to work in a diverse environment while fostering a climate of equity and inclusivity.

Literature review

Higher education scholars have long studied the processes of graduate student socialization and development (Gardner, 2008; Girves and Wemmerus, 1988; Golde, 2000; Golde, 2005; Nettles and Millett, 2006; Posselt, 2018; Tinto, 1993; Weidman *et al.*, 2001; Weidman and Stein, 2003). Socialization theory clarifies the developmental process in graduate school whereby students learn to adopt the epistemologies, norms, values and roles of their scholarly disciplines. Importantly, socialization models emphasize the role of the academic program as the primary site of socialization (Weidman *et al.*, 2001). Scholars note that faculty mentors within programs play a critical role in socializing students as scholars and supporting their persistence. Thus, the graduate education model is frequently referred to as an “apprentice model” (Zhao *et al.*, 2007), whereby faculty provide cognitive apprenticeship to help their mentees acquire the knowledge and methods of their fields (Austin, 2009).

Cognitive apprenticeship and graduate student learning do not happen in a vacuum. In graduate school, students are socialized to their disciplines in a socioculturally complex environment. Students are embedded within sub-fields, departments, institutions and disciplines, each with its own distinctive rules, values, cultures and norms. Graduate students also interact with diverse faculty, peer and family communities within these broader environments (Garcia *et al.*, 2020). Posselt’s (2018) conceptual model of rigor and support in doctoral education suggests that we cannot view subject matter learning independently from the sociocultural factors – conflicting norms and values and sense of belonging (or lack thereof) – that present challenges to doctoral students particularly those who are marginalized in their disciplines (e.g. students of color and women). Accordingly, attention to sociocultural contexts is critical to understanding student development. Illustrating this point, scholars have found that historically marginalized students do not receive the same quality of mentoring and have different mentoring needs when compared with their white male counterparts (Felder, 2010; Garcia *et al.*, 2020; Griffin *et al.*, 2020; McCoy *et al.*, 2015; Noy and Ray, 2012; Robinson *et al.*, 2016). Given the critical role faculty play, particularly for graduate students of color, racially diverse faculty play an essential role in determining whether a graduate student will forge meaningful connections in their field (Garcia *et al.*, 2020).

Scholars (Haley *et al.*, 2014) used social identity theory to understand whether and how graduate students internalize their scholarly identity and come to view themselves as part of their disciplinary “in-group”. They found a consistent connection between doctoral students’ cultural social identities and their motivations (or lack thereof) to pursue a faculty career after the graduate school experience. Students of color in the USA often perceive a conflict between their cultural social identity and the social identity of white faculty due to conflicting norms and values (Garcia *et al.*, 2020; Haley *et al.*, 2014). In other words, sociocultural factors are interconnected with students’ socialization and cognitive learning as future scholars of their disciplines. Along these lines, Posselt (2018) argues that those who contribute to socialization of graduate students – faculty, peers and staff – should make “space to openly discuss those aspects of graduate education and scholarly life that are raced and gendered” (p. 66). Similarly, in their study of Latinx graduate student socialization, Garcia *et al.* (2020) argue that the graduate curriculum lacks:

[. . .] a necessary focus on race and systems of oppression, and fails to account for the nuanced ways that family and peer contexts help Latinx develop resistance capital in order to succeed (p. 67).

For these reasons, DEI socialization is critical to the broader socialization of graduate student scholars. This is especially the case for those from historically marginalized backgrounds whose identities and values may be in conflict with the traditional norms and values of their predominantly white faculty mentors and scholarly communities. In fact, some scholars argue that if the goal of graduate education is to train future faculty who are

able to advance equity and inclusion, it is essential for graduate students to learn about DEI concepts as part of their broader scholarly socialization (Perez *et al.*, 2020).

Within the process of scholarly socialization, how, then, are students socialized to understand structural inequities in higher education and to contribute to an inclusive environment in their scholarly communities? For example, Porter *et al.* (2018) find that graduate students who engage in DEI work and training benefit from feelings of community building and empowerment but also pay the price of identity-related stress and emotional labor. These scholars further found that in the STEM fields, the disproportionate burden of DEI work often falls on students from marginalized backgrounds. While there is great value in DEI-related graduate coursework at the program level (Gaston Gayles and Kelly, 2007; Morgan Consoli and Marin, 2016), one study of graduate students across all disciplines found that academic departments do very little meaningful DEI socialization (Perez *et al.*, 2020). Lacking DEI training at the department level, this study found that graduate students gained DEI socialization through other settings, including student organizations or co-curricular courses or experiences, often at the graduate college (Perez *et al.*, 2020). In addition, staff of the graduate college frequently served as supplemental mentors related to DEI when marginalized students found insufficient mentoring and support at the department level (Perez *et al.*, 2020). In sum, “conversations related to EDI were welcome in the graduate college and at times at the university level; however, it was not a focus within most academic departments” (Perez *et al.*, 2020, p. 9).

The literature suggests that graduate education is a gendered and racialized environment (Garcia *et al.*, 2020; Porter *et al.*, 2018; Posselt, 2018) in which graduate students are rarely socialized to issues related to DEI in their departments (Perez *et al.*, 2020). Scholars find that graduate colleges at large research-intensive universities are sources of support and DEI professional development for graduate students but that there is a lack of research on the role of graduate colleges in fostering DEI socialization. They argue “additional studies are needed on the role of graduate colleges in promoting success and in promoting equity, diversity and inclusion in graduate education” (Perez *et al.*, 2020, p. 11). Given that graduate schools are often a site of DEI training and supplemental mentoring for students from marginalized backgrounds, we used multiple methods to examine the success of a program at the graduate college level at one large, selective, research-intensive public university in the Midwestern US designed to train students from all backgrounds in DEI knowledge and skills.

Diversity, equity and inclusion certificate program

Program history and description

The University where the program was developed has a longstanding history of activism by students from historically marginalized backgrounds and, as a direct result of this activism, an institutional commitment to DEI. In 2016, it implemented a university-wide DEI Strategic Plan and its Chief Diversity Officer argued that graduate students are a critical part of this charge. The centralized graduate college that partners with each graduate program, school and college to ensure the quality of graduate education and build a vibrant and diverse student community has prioritized access to graduate education and inclusive and equitable practices as critical to its mission for many decades. For example, in the 1960s, the University launched an affirmative action program aimed at recruiting students from educationally disadvantaged environments. These awards were the earliest form of a graduate fellowship for students from historically marginalized backgrounds still in existence today. More recently, in 2017, the graduate college developed a core skills framework for graduate student professional development and included DEI as one of its eight transferable skills.

The graduate college has offered a variety of high-quality DEI professional development opportunities (including workshops, symposia and training programs) to graduate students for many years. However, these one-off workshops and initiatives were typically disconnected from one another, which [Milem et al. \(2005\)](#) advise can result in inconsistent DEI engagement. Notably, stand-alone workshops offered without postworkshop reflection opportunities do not maximize learning and may have a limited impact ([Beidas et al., 2012](#); [Ash and Clayton, 2009](#)).

To foster intentional connections across the graduate college's DEI-related programs, during the 2017 academic year, the graduate college launched a DEI Professional Development Certificate Program designed to prepare graduate student scholars to work in a diverse environment while fostering a climate of inclusiveness. The idea for the DEI Certificate program and its shape emerged from student requests for more opportunities to develop their DEI knowledge and competencies. When asked what other professional development topics would be helpful on anonymous graduate college workshop feedback surveys, students reported feeling ill-prepared to respond to diversity-related questions that they were asked in job interviews and requested training on how to write diversity statements for faculty positions. Graduate college educators who led the professional development curriculum conducted informal needs assessment focus groups with graduate students and learned that students in many departments, particularly the STEM fields, did not receive any training related to writing diversity statements or articulating their commitments to DEI. Given the uneven DEI professional development at the program level on the campus, another goal of the DEI Certificate program was to provide equitable access to DEI-related professional development programming across the 180+ graduate degree programs, as smaller academic programs are often not as equipped to offer extensive DEI development opportunities.

The DEI Certificate program was designed to prepare graduate students and postdoctoral fellows to work in a range of diverse environments while fostering a climate of inclusiveness within the graduate college community. Program design and evaluation are based on [Fink's \(2013\)](#) conceptual model for significant learning. Fink's model expands upon classic learning taxonomies ([Bloom, 1956](#)) to account for the kinds of transformative learning we envisioned for students in the DEI Certificate program ([Harvey, 2017](#)). Specifically, Fink goes beyond cognitive learning (i.e. knowledge, application, integration) and includes affective forms of learning (i.e. human dimension, caring). Fink's taxonomy is well-aligned with the program learning objectives, including Fink's "human dimension" and "caring" forms of learning. [Harvey \(2017\)](#) builds upon Fink to outline a framework for designing transformative training programs to help learners work more effectively across differences. The DEI Certificate Program participants attend a series of 10 trainings, and students engage in multiple forms of reflection to deepen their learning. Students are required to submit a reflection form within 72 h of completing each training. Participants are also required to submit a diversity statement – a written articulation of their commitment to DEI that integrates and highlights their DEI professional development experiences. Finally, they must conduct an informational interview with a DEI practitioner of their choosing to learn about DEI issues in their own field and submit a summary of their learning from the interview. Program requirements take approximately 30 h to complete. The program is designed such that it can be completed in one year, though participants have up to two years to complete the requirements.

This paper reports on data from 193 students and postdoctoral fellows who completed the DEI Certificate program. Among these certificate participants, 50% ($n = 97$) were PhD students, 41% ($n = 79$) were Master's or Professional degree students (e.g., Master of Social work and Master of Business Administration) and 9% ($n = 17$) were postdoctoral fellows. In

terms of sex, 73% ($n = 140$) were female and 27% ($n = 53$) were male. The percentage of female students among total graduate college enrollment in the three years of this study ranged from 43 to 45%, so this is a significantly larger percentage of female students than the graduate student body. Among the participants, 85% ($n = 164$) were US citizens, and 15% ($n = 29$) were non-US citizen students or postdoctoral fellows. Non-US citizen participants had citizenship status in Argentina, Australia, Brazil, Canada, China, Colombia, France, Germany, Italy, Republic of Korea, Mexico, Pakistan, Spain, Taiwan, Turkey and the UK. Among the 164 US citizens, 73% ($n = 119$) identified as coming from non-underrepresented minority (non-URM) backgrounds, while 27% ($n = 45$) self-identified as coming from an underrepresented minority (URM) group. Our institution uses the US federal government definition of URM, so URM in this study includes those US citizens who self-identify as Black, Latinx/Chicanx/Hispanix and/or Native American. To give a sense of campus context, in the three years of this study, the percentage URM in the student population ranged from 17 to 19%. This means that URM students, like females, were overrepresented compared the campus graduate student body. In terms of race (inclusive of both US citizens and non-US citizens), 50% ($n = 97$) self-identified as white, 13% ($n = 25$) self-identified as Asian, 11% ($n = 21$) self-identified as Hispanic, 11% ($n = 21$) self-identified as Black/African American, 2% ($n = 4$) self-identified as multiracial [1] and 13% ($n = 25$) did not indicate their racial self-identification (80% of the missing racial data was among non-US citizen students and scholars).

Co-author positionality and reflexivity

Given this study evaluates programs that the authors run as scholar-practitioners, it is appropriate to briefly describe our positionality and share a summary of our identities. One co-author is a white, cisgender woman whose doctoral scholarship was on xenophobia and radical right political party support; the other co-author is a Black, cisgender woman whose scholarship was on the relationship between race, socioeconomic status, religion and self-esteem among adolescent girls.

Both co-authors earned PhD's in the social sciences during a similar period (2007 and 2010, respectively) from the same institution where we currently hold administrative leadership positions. We each had a mix of excellent and traumatizing experiences with faculty mentors, as well as experiences of marginalization and exclusion related to our social identities (including gender and motherhood). These experiences shaped our shared passion to create more inclusive, equitable and welcoming environments for graduate students from historically marginalized backgrounds. Upon completing our doctoral degrees, we both pursued "alt ac" roles within this same university that included DEI education and social justice-oriented work (e.g. leading inclusive teaching training, leading women of color in the academy program, etc.).

We play an active role in the DEI socialization that we want to evaluate in this study. Given this positionality as designers and leaders of the DEI Certificate program, we took several steps to enhance the trustworthiness of our program evaluation. First, when we launched the program, we consulted with our campus Intercultural Learning and Innovation Lead to select a validated and reliable external tool to assess student gains in intercultural competence, the Intercultural Development Inventory® (IDI®). All IDI data for the purposes of this program evaluation study were collected and stored by the Intercultural Learning and Innovation Lead. Second, we hired a doctoral student in higher education to work with us on designing our focus group protocol, and this student did the initial coding of all focus group data. We also engaged intentionally in reflexive conversations about coding decisions as a research team.

Program evaluation methods

We used multiple methods to evaluate the impact of the DEI Certificate program on students' DEI development. [Johnson and Onwuegbuzie \(2004\)](#) argue that qualitative and quantitative research used together produce more complete knowledge necessary to inform theory and practice. In considering ways to assess significant learning, we were guided by [Harvey's \(2017\)](#) framework for transformative intercultural learning, which she notes can be used to form the basis of training programs to help learners work more effectively across differences. [Harvey's \(2017\)](#) framework is grounded in [Fink's \(2013\)](#) conceptual model. Harvey contends that multiple forms of assessment and evaluation, including self-reflection on significant learning objectives and validated intercultural development tools like the IDI, are appropriate to assess learning in a program designed to promote significant learning across differences like the one evaluated in this study. The graduate college educators who designed the program see self-assessment as a way to actively engage students in the learning process ([Harvey, 2017](#); [Yan and Brown, 2017](#)) but also wanted a reliable tool to assess student gains in intercultural competence (i.e. the ability to work across commonalities and differences). Therefore, we used the IDI as our first program evaluation tool. In addition, we designed a self-reflection tool grounded in [Fink's \(2013\)](#) conceptual model to assess students' perceptions about their learning. Finally, in 2019, following a sequential model for mixed-method program evaluation ([Creswell, 1999](#)), the study team conducted a series of focus groups with graduates of the program to evaluate how they made sense of the aggregate findings of the self-reflection tool.

Intercultural Development Inventory

The IDI was chosen as a program evaluation tool because it is a theory-based and developmental tool ([Bennett, 1986, 1993](#); [Bennett and Bennett, 2004](#)) used by many educational organizations to achieve US domestic diversity and inclusion goals ([Bennett and Bennett, 2004](#); [Hammer et al., 2003](#); [Harvey, 2017](#); [Paige et al., 2003](#); [Lucietto and Russell, 2020](#)). [Harvey \(2017\)](#) argues that the IDI is a useful tool to use in a developmental curriculum like the program evaluated here. The IDI is grounded in Bennett's developmental model of intercultural sensitivity (DMIS), which contends that intercultural sensitivity is a kind of cognitive complexity one gains through experiences with cultural similarities and differences ([Bennett, 1993](#)). The DMIS conceptual model aligns with the program's developmental assumptions about students' capacity to deepen their awareness and learn skills to work across differences. The IDI instrumentalizes the DMIS theory and is a valid and reliable intercultural development assessment ([Wiley, 2016](#); [Wiley, 2017](#)). [Paige et al. \(2003\)](#) argue that the IDI assesses intercultural competency and [Lucietto and Russell \(2020\)](#) assert that it is not subject to social desirability bias.

Since the launch of this program, scholars have begun to debate the use of the IDI for Black, indigenous and people of color (BIPOC) students in the US educational context, with some arguing based on rich interview analyses with BIPOC students that the IDI downplays the role of structural racism in the lives of BIPOC students in the USA ([Punti and Dingel, 2021](#)). Bennett's DMIS conceptual model does apply the framework to both domestic and global diversity ([Bennett, 1993](#); [Bennett and Bennett, 2004](#)), and [Bennett and Bennett \(2004\)](#) outline ways in which intercultural sensitivity must be understood differently for "nondominant group" members (such as BIPOC in the US context). For example, they note that nondominant group members "have little opportunity to assume that cultural difference is irrelevant in their lives" ([Bennett and Bennett, 2004](#), p. 158). [Hammer \(2022\)](#) asserts that the IDI was validated for domestic diversity purposes, noting:

20,015 BIPOC respondents who reported their identity as an ethnic minority were represented in the larger (218,111 respondents) validation sample. Targeted validation testing was conducted for generalizability of the IDI to these self-reported ethnic minority respondents (p. 176).

Whether the IDI is valid for BIPOC respondents in the US merits further study. [Punti and Dingel \(2021\)](#) argue that their findings demonstrate the need to incorporate the concept of structural inequality in university DEI and intercultural programming. In terms of the program evaluated here, one of the learning objectives is to educate students about racism, particularly in the US context, and all program participants are required to learn about structural racism in the USA.

The graduate college worked with the campus Intercultural Learning and Innovation Lead to use the IDI to assess students' development along the intercultural development continuum. To provide students the opportunity to learn from their IDI results and take concrete steps to develop themselves over the course of the program, students took the IDI at the beginning (pre) and end of the program (post). Beginning in year two of the certificate program, students were given the option to meet with a campus IDI-qualified administrator after the pretest for a confidential coaching session in which students identify action steps they can take to develop their skills related to equity and inclusion [2].

The IDI assesses intercultural competence, defined as the capability to shift cultural perspective and adapt behavior to cultural differences and commonalities ([Hammer et al., 2003](#); [Hammer, 2011](#)). Adapted from Bennett's DMIS model ([Bennett, 1986, 1993](#); [Bennett and Bennett, 2004](#)), intercultural competence is evaluated by the IDI on a continuum called the Intercultural Development Continuum® (IDC®). The IDC describes a set of knowledge, skill sets and orientations toward cultural difference and commonality. These are arrayed along a continuum of five stages from the more monocultural mindsets of Denial (minimum score of 55) and Polarization through the transitional orientation of minimization to the intercultural mindsets of Acceptance and Adaptation (maximum score of 145) ([Figure 1](#)).

The IDI measures orientations toward cultural differences and commonality in two ways: *perceived orientation*, which reflects where one places oneself along the IDC, and *developmental orientation*, which indicates one's primary orientation toward cultural differences and commonalities along the continuum as assessed by the IDI. The orientation gap is the difference along the IDC between one's perceived orientation and developmental orientation. A gap score of seven points (the scale has a range of 90 points) or higher indicates a meaningful difference between the perceived orientation and the assessed developmental orientation. A positive difference shows an overestimation of intercultural competence, and a negative difference shows an underestimation. In every year of the program, the graduate college found an overestimation among program participants of their cultural competence, which is quite typical for the IDI.

Reflections on dimensions of significant learning

Our second research question was "What components of DEI-related training promote significant learning?" To help us answer this question, program participants also completed a self-reflection form ([Appendix](#)) upon completion of *each and every training session* to encourage reflection on significant learning experiences throughout the program. The primary goal of this self-assessment was to engage students in formative, metacognitive reflection on what they were learning throughout the program. These questions were designed by the co-authors and a graduate student research assistant to assess significant learning in all six of Fink's learning taxonomy categories: foundational knowledge (question 1), application (questions 2–3), integration (questions 4–5), human dimension (questions 6–7), caring (questions 8–9) and learning how to learn (question 10). On the

Intercultural Development Continuum (IDC™)

Diversity,
equity and
inclusion

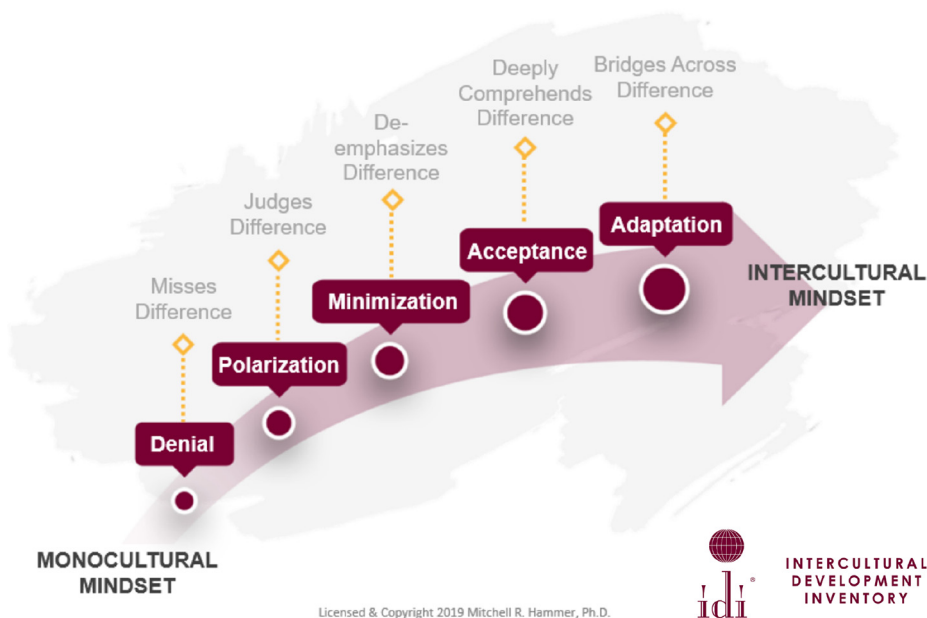


Figure 1.
Intercultural
Development
Continuum® (2020),
IDI and limited
liability company
(LLC). Used with
permission

reflection form, the graduate college asked scholars to indicate their level of agreement on a Likert scale of 1–5 (with 1 being “strongly disagree” and 5 being “strongly agree”) with each statement.

Focus groups

Finally, once we had analyzed several years of IDI and self-reported significant learning data, in September–October 2019, the graduate college received Institutional Review Board exemption to conduct three focus groups for the purposes of program evaluation to better understand the students’ perceptions about significant learning in the DEI Certificate program. In this sequential program evaluation approach (Creswell, 1999), the focus groups were intended to help us answer our second research question about what components of the program promote significant learning. While we had evidence from IDI results and students’ self-reports of significant learning, we had unanswered questions about what made for significant learning based on the IDI and self-assessment data alone, and focus groups could enable us to unpack the mechanisms that led to significant learning. Participants in the focus groups (13 total) were all graduates of the DEI Certificate program who responded to an open invitation to participate in a focus group and consented to participate. Focus group participants came from diverse backgrounds; demographic data was drawn from self-reports on students’ applications to graduate school. They were enrolled in doctoral ($n = 6$), master’s ($n = 6$), and joint doctoral/master’s programs ($n = 1$). In terms of disciplinary backgrounds, students came from social sciences ($n = 6$), STEM ($n = 5$) and humanities/arts ($n = 2$) fields. Four individuals were non-US citizen students from Korea, Taiwan, UK and Canada. Among the nine US citizen students, they self-identified their race as Black ($n = 5$),

Hispanic ($n = 2$) and white ($n = 2$). Finally, the sample included nine female and four male students [3]. Focus group participants were given their individual reflection form submissions and a summary of the aggregate significant learning data presented in Table 2. Focus group facilitators shared with students several observations about significant learning data, including that, on average, “changed my personal values” scored the lowest across all program curriculum and that some of the graduate college training (e.g. the bystander intervention training) scored higher across all forms of significant learning than others (e.g. the implicit bias training). The focus group facilitators invited program graduates’ insights as to why the “changed my personal values” type of significant learning was lower than other forms of learning. To understand better what led to significant learning in certain trainings, participants were also asked what made training with higher average self-reports of significant learning impactful.

The focus groups were transcribed and analyzed using a grounded theory (Glaser and Strauss, 1967) inductive coding approach. A graduate student research assistant (a doctoral student in higher education) identified common themes with regard to what made training most impactful overall for significant learning, and the authors discussed and refined these codes as a team to finalize coding.

Program evaluation findings

Intercultural development inventory

Our first research question was: “Does the graduate college contribute to significant learning related to DEI?” Evidence of significant learning would be that learners both grow in their developmental orientation and reduce their orientation gap as measured by the IDI. Paired *t*-test analyses of the pre- and post-IDI scores show that the difference between IDI competence pre and postprogram was statistically significant for all cohorts. As shown in Table 1 [4], in the cohort for year one, collectively, the group moved 11.33 points along the developmental continuum from mid-minimization toward Acceptance due to participation in the certificate. The group also saw a 6.67 point reduction in their orientation gap. In the cohort for Year 2, the group moved 8.63 points along the continuum from mid-minimization to late-minimization and reduced their orientation gap by 4.93. In the cohort for year three, the group of completers moved 9.87 points along the continuum from mid-minimization to late-minimization and reduced their orientation gap by 5.41 points. In sum, every year cohorts grew a modest but substantively significant degree in their intercultural competence as measured by the IDI. The substantive reduction in the orientation gap demonstrates that students became more accurate at assessing their own skills to bridge cultural differences as

Table 1.
DEI certificate
participants’ pretest
and posttest average
IDI scores

Program participant group	No. of participants	Perceived orientation	Developmental orientation	Orientation gap
Year 1 pre	43	124.71	100.87	23.84
Year 1 post	43	129.37	112.20	17.17
Year 1 pre/post difference		4.66	11.33	-6.67
Year 2 pre	91	124.43	100.49	23.94
Year 2 post	91	128.13	109.13	19.01
Year 2 pre/post difference		3.70	8.64	-4.93
Year 3 pre	60	124.61	100.51	24.10
Year 3 post	60	129.07	110.38	18.69
Year 3 pre/post difference		4.46	9.87	-5.41
Total	194			

a result of their learning. In all three years, the graduate college performed a paired *t*-test to determine whether the difference between the mean pretest IDI scores and the mean posttest IDI scores were significantly different. The *p*-value on the paired *t*-tests for all three years was <0.01, which is less than the standard significance level of 0.05, meaning we can reject the null hypothesis that the difference between the pretest and posttest IDI scores was the result of chance, and therefore, find evidence that participation in the DEI certificate was associated with significant learning related to DEI.

The graduate college allows students to take up to two years to complete the program, and in year three, there was enough data to explore potential differences in IDI results when comparing students who took one year versus two years to complete the program. We found that students who completed the program in one year had greater developmental gains. The 167 students who completed the program in one year increased developmental orientation by 10.26 and reduced their orientation gap by 5.86, whereas the 27 students who took two or more years to complete the program increased developmental orientation by 5.60 and reduced their orientation gap by 3.00. Substantively speaking, the significant learning gains are greater when students participate in the program in the one-year more intensive timeframe.

Reflections on dimensions of significant learning

Table 2 summarizes the average level of agreement (on a Likert scale of 1–5) with each statement of significant learning as a result of each of the required training for the DEI Certificate. The average level of agreement with statements of significant learning ranged from a minimum of 3.24 to a maximum of 4.58. Scholars reported significant learning in every dimension of Fink’s taxonomy, from foundational knowledge to learning how to learn.

On average, participants consistently agreed that they gained new knowledge, reflected on applications of the material, integrated ideas or concepts in a new way, connected ideas or concepts to their own life, gained greater self-awareness, gained a greater awareness of others, deepened their appreciation for the topic and wanted to continue their learning. Students agreed they also applied critical and/or creative thinking skills in the graduate college core training, but the degree of agreement with critical thinking benefits was lower for nongraduate college training and the IDI coaching session. The IDI coaching session was

<i>As a result of this session, I:</i>	Graduate college core trainings aggregate	Nongraduate college trainings aggregate	IDI coaching session
Gained new knowledge	4.26	4.34	4.27
Applied critical and/or creative thinking skills	4.16	3.89	3.83
Reflected on how to apply the material to my teaching/ research/community	4.28	4.33	4.25
Integrated ideas or concepts in a new way	4.10	4.11	4.11
Connected ideas or concepts to my own life	4.40	4.40	4.54
Gained greater self-awareness	4.20	4.26	4.58
Gained greater awareness of others	4.26	4.34	4.11
Deepened my appreciation for the topic	4.29	4.40	4.24
Changed my personal values	3.24	3.36	3.49
Wanted to continue to learn more about the topic	4.29	4.40	4.32
	<i>n</i> = 1225	<i>n</i> = 1210	<i>n</i> = 171

Table 2.
Mean participant agreement related to significant learning dimensions in each program area

especially powerful for students in gaining greater self-awareness. Finally, students, on average, neither agreed nor disagreed that they changed their personal values as a result of any of these learning experiences.

Focus groups

The purpose of the focus groups was to answer our second research question about what components of DEI-related training promote significant learning. The focus groups allowed students to describe in their own words what enabled significant learning in the program. The authors' research assistant identified initial codes for themes that emerged across all three focus groups for the first round of coding. The authors reviewed these codes and provided feedback to refine the initial codes as a research team. Initial themes related to our research question about what contributes to significant learning included program content (e.g. nature of examples and the complexity of topics); program facilitator (e.g. preparedness, instructional style and strategies); workshop structure (e.g. time dedicated to reflection and opportunities for application); learning goals (e.g. clarity and deepening knowledge of less familiar topics); and value change (e.g. definition of values and the time it takes to change values). The research assistant then identified themes within each initial coding category, updated the codebook and again reviewed the codebook with both authors. The team revised the codebook based on several team discussions of coding decisions and engaged in intentional conversations about how the authors' positionality as program designers might influence coding decisions. In this paper, we discuss in depth two themes that had the greatest number of student comments across the three focus groups related to our research question of what promoted significant learning. Finally, we report on the most prominent themes that emerged in discussions about why students thought significant learning in the form of value change was less common than other forms of significant learning.

First, facilitator skill (in the initial broader theme of program facilitator) was considered critically important for significant learning by graduates of the program (14 comments related to facilitator skill). Participants' feedback around training facilitation pertained to the perceived preparedness of the facilitators, as well as the effectiveness of facilitators' instructional approaches. With respect to pedagogical approaches, a number of participants valued when instructors modeled vulnerability in sharing their own experiences with challenging DEI subject matter (especially when asking participants to do so) and demonstrated real-time tactics to navigate challenges and questions associated with the topic (seven participant comments related to this theme). Below are several illustrative quotes regarding effective DEI training facilitation:

I did go to one workshop where I think the facilitator was asking for things that the facilitator wasn't willing to do themselves. And I think that is what made that workshop so ineffective because you can't ask for a group of virtual strangers to be vulnerable with each other and with you. And then not give the group that same respect back. (Black, male, US citizen, master's student)

He was one of the better, like better presenters. The way he incorporated his own personal experience into the presentation, like, "I've made these mistakes, too, and these are ways that I have done it". It made it easier to understand that [...] you won't always get it perfect. And if you make mistakes, these are also ways that you can, like, you know, learn from them, and fix them. (Hispanic, female, US citizen doctoral student)

Both of these quotes illustrate that for significant learning to happen, students must feel that those leading the DEI learning process must be co-learners with students, willing to vulnerably share their own DEI journeys with the students. Personal disclosure about lived experiences with inclusive practices and allyship were critical for students to be willing to

consider how they, too, can learn and grow. Students' perspectives on successful pedagogical approaches suggest that vulnerability on the part of instructors is a necessary component of effective DEI training.

Second, many (six participant comments) felt that opportunities for reflection (within the initial theme of workshop structure) both during sessions and outside of sessions (e.g. either on reflection forms or through assignments like the informational interview) played a vital role in deepening significant learning in the DEI Certificate:

I would find myself in the session thinking about things that I had experienced or that I had said or that I had seen or whatever. So I felt like the way that the sessions were structured were set up for reflection. (white, female, US citizen, master's student)

A lot of them [the trainings] have anecdotes and stories of specific situations and we reflect on those stories within our groups and so just having a diversity of those stories that we can reflect can be good. (Black, female, US citizen, joint doctoral/master's student)

I thought that informational interview was quite valuable, again because for me, talking about with other people, talking about my experiences and reflecting was really the most helpful part of solidifying some of these concepts (male, non-US citizen, master's student).

As these quotes from participants illustrate, learners felt reflection was essential to personal growth and professional development. They appreciated the time to process – often through discussion with peers – how the new knowledge they were learning related to their personal experiences, both past and current. Reflection allowed them to consider ways to directly apply what they learned going forward.

To answer our research question about what promotes significant learning, the focus group facilitators also asked participants' thoughts on why significant learning related to value change was minimal compared to other forms of significant learning. We thought a greater understanding of where significant learning did not happen would help us better appreciate what is required for significant learning to take place. Participants in the focus groups identified several reasons that participants may have experienced little change in their DEI-related values as a result of their involvement in the certificate program. There were two prominent themes that emerged related to this theme of value change. The most common theme (11 participant comments) was that rather than *changing* people's values, the certificate aided individuals in developing greater self-awareness and skills to live out their DEI-related values:

It didn't change what I believe in. It just refreshed, and just made me think, challenged me a little bit more. (Black, female, US citizen, master's student)

I think "changed" this word it's like, big. Yeah, so maybe it's like "expanded" or like if I "have some new ideas", but I don't think when I look at a question, I don't think that really changed the way I think. (male, non-US citizen, doctoral student)

The point of the program is not necessarily to make people who don't care about diversity care about diversity. But to give the people who already care better tools to help out other people. (white, male, US citizen, doctoral student)

The second most common theme (four participant comments) related to value change was that there is likely a selection bias in the certificate's recruitment process, given that participation is purely voluntary and individuals who opt to pursue the certificate already

align with the program's values. In other words, those who choose to participate already value DEI and are not seeking to change that value but rather to deepen it:

People come in with an openness and appreciation of diversity and maybe that's one of the foundational values of the certificate and so there's a selection bias. Those who sign up already feel that way. (male, non-US citizen, doctoral student)

As long as the program is purely voluntary that [changed my personal values item] will always be the lowest one. It's not necessarily a bad thing. People whose values could change the most from these programs would be the ones whose values don't align with it the furthest and those people aren't going to sign up for it. (white, male, US citizen, doctoral student)

Three other slightly less prominent themes (with three comments each) that the research team identified include: values are deeply ingrained and difficult to change; participants' perceived humility in acknowledging the possibility of a change in their values as a result of one training; and that participants had too short of a timeframe for value change to be observed (participants filled out their reflections within 72 h of training). Taken together, participants' perspectives suggest that changing one's values is a form of significant learning that takes a great deal of time and processing, as values tend to be deeply held.

Discussion

As noted earlier, US graduate education is a gendered and racialized environment in which students' departments rarely explicitly engage in DEI socialization efforts (Garcia *et al.*, 2020; Porter *et al.*, 2018; Perez *et al.*, 2020; Posselt, 2018). Furthermore, graduate colleges at large research-intensive universities are an understudied potential site of DEI socialization (Perez *et al.*, 2020). To contribute to this understanding, this multimethod program evaluation of a DEI Certificate program at one large research-intensive university in the Midwestern US examined the impact of one program to unpack how graduate colleges might contribute to DEI socialization. To evaluate the program, we examined the prepost evaluation of intercultural development using the IDI, participants' formative self-assessments of their significant learning after each training session, and qualitative data from three focus groups with program completers. Taken together, the findings suggest that students perceive that they learned about DEI in significant ways (increased knowledge, application, integration, caring, etc.) through their participation in the program. In addition to their own self-perceptions of increased DEI knowledge and skills, the IDI program evaluation data suggests that those who participated in the program developed their intercultural competency skills in substantive ways. Focus group findings suggest that the factors that made the program particularly impactful for DEI socialization included skillful instructors (i.e. instructors who were knowledgeable about DEI concepts and modeled vulnerability) and students' frequent opportunities for reflection during and after training sessions.

As previously noted, higher education socialization models traditionally emphasize the role of the academic program as the primary site of graduate student socialization (Posselt, 2018; Weidman *et al.*, 2001). Faculty are also seen as playing a critical role in student socialization and success (Austin, 2009; Weidman *et al.*, 2001; Zhao *et al.*, 2007), particularly for students from historically marginalized backgrounds (Garcia *et al.*, 2020; Posselt, 2018). The socialization model proposed by Garcia *et al.* (2020) suggests that racially diverse faculty, staff and administrators within higher education institutions make an important contribution to the socialization of Latinx students. This study illustrates how staff and administrators, not only faculty, contribute substantially to student DEI socialization and success. In focus groups, students specifically named skillful DEI training facilitators – all of whom were university staff

educators – as contributing to their growth and learning. Our study suggests that the co-curricular learning offered by the graduate college contributed to student learning related to equity and inclusion for graduate students enrolled in the certificate program. Models of graduate student socialization should account for the role that diverse staff and administrators and co-curricular significant learning opportunities can play in student success. In addition, this study suggests that faculty leaders can benefit from partnering with staff and administrators at the graduate college to support their students' DEI socialization (Subramanian *et al.*, 2022).

Our program evaluation study also has several limitations. Our study found that graduate college can be a site of DEI socialization and significant learning, and the program provides a space for students who already value DEI to deepen their DEI-related knowledge and skills. However, we also found that the program may have a limited impact on changing minds related to DEI. The program is purely voluntary, and because students were self-selected into the program, few participants in the program changed their personal values while participating in learning activities. The program arguably created a brave space for students committed to DEI to hone their skills in promoting greater equity and inclusion in US higher education. However, given our program evaluation of one voluntary DEI program, it is unclear how the graduate college can contribute to DEI socialization of *all* students. Thus, based on this study, we cannot conclude that similar significant learning would happen in a mandatory (as opposed to a voluntary) training program where participants are not intrinsically motivated to learn. In addition, while we know the individual impact of participation in the program, we did not assess the institutional impact of students' participation in the program. Subsequently, we do not know whether students were able to use their agency to influence their departmental or campus climates.

In terms of methodological limitations, in our focus groups, we have likely not reached a point of saturation in our grounded theory analysis, given the sample size of 13. If we have the capacity to extend the research in future years, additional focus groups may lead to more categories related to significant learning among students. This is a limitation of our study as a program evaluation rather than a more rigorous qualitative research project. In terms of limitations of our IDI data analysis, a multivariate approach would allow us to look at potential explanatory variables such as gender, race, US citizen status and program length (one year versus two years) that could explain variations in changes in students' intercultural development. However, access to institutional data and pairing such data with our IDI data requires informed consent from the students, as well as IRB approval. When the researchers designed this study, we had not considered the explanatory benefits of a multivariate approach, and therefore, did not have the informed consent to connect the IDI data we gathered with institutional data. Our results also have limited transferability because the program is unique to one large research-intensive institution and its student population. Graduate colleges at smaller institutions or with fewer resources may not be able to sustain such resource-intensive, campus-wide DEI socialization efforts. This program requires multiple graduate college staff members to execute and partnership with several other units on campus and may not be feasible at other institution types. That said, a less-resourced institution could distill some of the parts of this certificate program – for example, cohort-based DEI training with reflection embedded in the curriculum – to support graduate student DEI socialization on their campus. Future research should explore the role that diverse staff and administrators might play in graduate student socialization at smaller institutions. Another possible confounding factor is that for the duration of this study, there was a campus-wide commitment to DEI that may also support students' DEI socialization, making it difficult to tease out the unique impact of the graduate college's DEI Certificate program on students' socialization.

There are several potential future avenues to explore the program's impact. For example, while we did gather qualitative data on how students anticipate applying their enhanced DEI skills, due to limitations in space for this study, we did not conduct a rigorous qualitative analysis of these responses. An analysis of these responses would help us to better understand how students perceive that they applied their learning. In addition, a future promising direction for this work would be to request students for consent to pair their IDI data with institutional data, which would allow us to explore whether some groups are more likely than others to grow in their intercultural development as measured by the IDI as a result of participation in the program. These data would also be useful to inform the scholarly debate about the use of IDI for historically marginalized US citizen students participating in domestic DEI programs. Finally, while student learning gains were assessed throughout and upon completion of the program, the graduate college did not assess whether these learning gains persist after scholars complete the program. Another future direction would be to explore the long-term impact of participation in the program on scholars' DEI commitments and cultural humility.

Conclusion

Those involved in the graduate education enterprise – disciplinary organization leaders, university leaders, departments, faculty and graduate college staff educators – know there is a need for DEI socialization and training for doctoral students. Yet, most departments have not integrated such DEI training into their curriculum (Perez *et al.*, 2020). While graduate programs and faculty play a critical role in graduate student socialization, other units across the university are well-positioned to supplement the professional development and learning that takes place at the department level. In imagining a new future for doctoral education, scholars have argued that units beyond individual programs must sponsor professional and career development efforts (Cassuto and Weisbuch, 2021; Subramanian *et al.*, 2022). They further assert that it is important to empower graduate deans and colleges to be part of the solution in better preparing doctoral students for their future careers. This program evaluation study demonstrates that DEI training with expert educators at the graduate college can create meaningful and significant learning experiences for doctoral students, especially when reflection and skillful DEI instruction are structured into the program. Graduate faculty and staff at graduate colleges can partner to create more inclusive and equitable learning environments and to better support graduate students in developing the skills necessary to foster inclusive work environments and advocate for equitable practices in their future careers.

Notes

1. One multiracial student self-identifies as Asian and white and is, therefore, not counted as URM by our university.
2. Based on the program evaluation results presented in [Table 2](#), the graduate college made IDI coaching sessions required beginning in Year 3 of the program.
3. Note that students were not asked their gender or gender identity at the time these data were gathered on graduate school applications. Students were only given the binary sex categories of male and female to identify their sex.
4. Students IDI results in [Table 1](#) are organized according to the cohort for the year that participants applied to the program, not necessarily the year that they completed the program. The majority of students completed in one year, but others took two to three years to complete the program.

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Further reading

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Appendix

The graduate student professional development DEI certificate program – reflection form

- (1) Event type: please indicate if the event you attended was a core or noncore training.
- (2) What was the date of the event?: Please enter the date in “mm-dd-yyyy” format.
- (3) Presenter or Key Contact.
- (4) As a result of this session, I:
 - (a) gained new knowledge (e.g. information, concepts, definitions, etc.);
 - (b) applied my critical and/or creative thinking skills (e.g. through a case study, role play, simulation, etc.);
 - (c) reflected on how to apply the material to my teaching/research/community;
 - (d) connected ideas or concepts to my own life;
 - (e) gained greater self-awareness (e.g. of my identity, perspective, privilege, values, etc.);
 - (f) gained greater awareness of others (e.g. of their identity, perspective, privilege, values, etc.);
 - (g) deepened my appreciation for the topic;
 - (h) changed my personal values;
 - (i) wanted to continue to learn more about the topic; and
 - (j) other benefit than those listed above (please describe).

Students responded to questions 4a–4j using a 1–5 Likert scale where 1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree.

- (5) Please select at least one action item that you plan to take as a result of this event.
 - (a) revise a professional document (e.g. diversity statement, teaching statement, resume, etc.);
 - (b) seek additional resources or training opportunities related to this topic;
 - (c) practice and apply the knowledge/skills gained to my research;
 - (d) practice and apply the knowledge/skills gained to my teaching;
 - (e) practice and apply the knowledge/skills gained to my community engagement;
 - (f) intervene in instances of injustice and/or harm;
 - (g) share the knowledge and/or resources I gained with others;
 - (h) organize and/or become more involved in an initiative related to this topic; and
 - (i) other action item.
- (6) How have the DEI skills and topics learned from this session enhanced your professional or personal development? How might you apply these skills?
- (7) Any other things you would like to tell us (questions, concerns or comments)?

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