

**Institutional Environments for Diverse and Inclusive College Teaching:
Exploring Disciplinary Variation**

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Abstract

In this study, we examine the ways that discipline relates to what are often viewed as institutionally situated teaching environments. Using data from the College + University Teaching Environments (CUTE) survey, we make novel use of the Biglan dimensions to identify disciplinary variations in three important pedagogical and curricular aspects of teaching environments: the importance of diversity in the curriculum, the use of inclusive pedagogies, and faculty members' sense of autonomy in their teaching. Findings indicated significant differences across disciplinary areas in all three aspects of teaching environments. Faculty in Soft and Nonlife disciplines more often drew upon inclusive pedagogies in their courses, while faculty in Pure and Nonlife disciplines placed greater importance on diversity in the curriculum. Findings suggest teaching environments are not solely driven by institutional policies or efforts and institutional stakeholders must be cognizant of how disciplinary cultures affect teaching.

Keywords: Teaching environments, disciplinary differences, diversity and inclusion

Institutional Environments for Diverse and Inclusive College Teaching: Exploring Disciplinary Variation

With the ever-increasing diversity of students and faculty in US higher education institutions, there is an imperative for administrators, staff, and faculty to examine how institutional teaching environments are supportive and inclusive of that diversity. The teaching environment, particularly the inclusion of diversity in the curriculum, is an especially important factor in creating learning environments for diverse students to succeed (BrckaLorenz et al., 2021; Hurtado et al., 2012; Nelson Laird, 2014). The inclusion of diversity in the curriculum and use of inclusive pedagogies are important ways that faculty can humanize the classroom for all students. While the institutional role in shaping teaching environments is typically in focus (e.g., Hurtado et al., 2012), it has long been understood by scholars that disciplinary cultures play a significant role in shaping the curriculum (Becher & Trowler, 2001; Clark, 1997). For curricular dimensions of teaching environments, then, it is essential to examine disciplinary influences.

Scholars have also suggested that as faculty grow more diverse, both in terms of their identities as well as their employment characteristics, it is necessary to ensure that all faculty members have considerable autonomy and freedom in their research and classrooms (Gappa et al., 2005). If there are disciplinary factors that affect the teaching environment around the inclusion of diversity or inclusive pedagogies in the classroom, then it is further necessary to consider how disciplinary cultures relate to faculty members' sense of teaching autonomy. Just as diversity in the curriculum and the use of inclusive pedagogies can help to acknowledge and value the humanity of students in the classroom, providing faculty with the autonomy to conduct their teaching as they see appropriate is important in acknowledging their humanity as teachers and scholars.

In this study, we examine the ways that discipline relates to what are often viewed as institutionally situated teaching environments. We make novel use of the Biglan (1973a, b) dimensions, as indicators of important aspects of disciplinary cultures, to identify disciplinary variations in three important pedagogical and curricular aspects of teaching environments: the importance of diversity in the curriculum, the use of inclusive pedagogies, and faculty members' sense of autonomy in their teaching. The following questions guide this study:

1. How do three aspects of faculty teaching environments vary across general academic disciplinary areas?
2. To what extent do disciplinary cultures relate to three aspects of faculty teaching environments?
3. To what extent does the interaction of disciplinary cultures and faculty sense of teaching autonomy relate to the importance of diversity in the curriculum and the use of inclusive pedagogies?

Relevant Literature

Curricular Diversity

Scholars have shown that increasing diversity in the curriculum is important. At its core, the curriculum communicates what is considered important for students to learn in a course or program (Lattuca & Stark, 2009). By including diversity in the curriculum, an institution or program signals to students, explicitly and implicitly, that diversity is valued and that diverse knowledge and perspectives are considered legitimate (Hurtado et al., 2012). Mayhew et al. (2005) found that for all students, and especially students of color, the more diverse the curriculum, the more positively they viewed their institution's climate for diversity. Furthermore,

diversity in the curriculum has been associated with decreased prejudice (Denson, 2009; Engberg, 2004; Engberg et al., 2007) and with cognitive development (Bowman, 2009).

Teaching environments that are supportive of diverse faculty and students are characterized by classrooms and curricula that allow for dynamic interactions between student and faculty identities, teaching practices, and content (Hurtado et al., 2012). Indeed, Marin (2000) indicated that diversity in the curriculum and the use of active learning techniques helped to enable a diverse student body to understand and engage to improve learning. Millem (2001) found that faculty who perceive their institutions as emphasizing diversity in the curriculum or take a student-centered approach are more likely using active learning techniques in their classrooms, which promotes not only interactions between students but also more meaningful interactions between faculty and students. Such positive and meaningful interactions between students and faculty as well as between students have even been connected to reduced perceptions of prejudice and more positive perceptions of the learning environment (Cole, 2007; Cress, 2008).

Inclusive Pedagogy

While student-focused approaches, where students are the drivers and focus of communication and activity in the classroom, are not necessarily always inclusive approaches, inclusive approaches as described above are certainly student-focused (Nelson Laird, 2011, 2014). Inclusive pedagogies have been defined in a variety of ways by different scholars but generally emphasize valuing student identities, experiences, and voices, and making these a central part of students' learning experiences (Tuitt, 2003). Characterized in another way, this valuing of student identities and experiences can be viewed as fostering a sense of belonging in the classroom through inclusive pedagogies (Sanger, 2020).

Often, an inclusive orientation to teaching is confused with simply including content from authors and cultures that are traditionally underrepresented in the curriculum. However, as Nelson Laird (2011, 2014) argued, a course or curriculum has nine different components (e.g., purpose, content, assessment/evaluation) each which can vary in its inclusivity. Being inclusive in one element likely is not sufficient, but being inclusive in all elements may be difficult to achieve. Research suggests, however, that the more inclusive instructors make their courses across multiple elements, the more likely they are to use a host of effective teaching practices, suggesting the course will have more positive learning benefits for students (Nelson Laird & Engberg, 2011).

Faculty Teaching Autonomy

A faculty member's autonomy with respect to teaching, an internally perceived sense of a person's ability to make choices based on their own values and interests, is an important component for faculty to feel inherently satisfied with their teaching responsibilities (Ryan & Deci, 2000). Gappa and colleagues agree (2005), asserting that there are five essential elements of faculty work, built on a foundation of respect, that are necessary to support diverse faculty. One of these elements is autonomy—the ability to express their views in their scholarly work as well as make choices about their courses. Faculty members who have a high degree of autonomy in the classroom are more positively, intrinsically motivated to teach; conversely, faculty who have a low degree of autonomy in the classroom are less positively, intrinsically motivated to teach (BrckaLorenz et al., 2017).

Intrinsic motivation for teaching is important because of its link to effective educational practice. More positive intrinsic motivations for teaching are linked to a greater use of effective teaching practices such as teaching clarity, higher-order learning activities, reflective and

integrative learning activities, and encouragement of collaborative learning activities (Stupnisky et al., 2018). In another example, Prosser and Trigwell (1997) found autonomy in teaching to positively relate to a teacher's use of a student-focused approaches to teaching. Especially pertinent to the explorations in this study, BrckaLorenz and colleagues (2017) found that a sense of autonomy differed by faculty demographics and disciplinary areas suggesting a relationship with faculty cultures. In their work, Asian faculty, full professors, and faculty in education disciplines felt a greater sense of autonomy in their teaching than their colleagues. Full-time lecturers and instructors and faculty in biological sciences and health professions fields felt a lesser sense of autonomy in their teaching compared to their peers.

Disciplinary Cultures

While faculty operate within their institutional environments, the academic disciplines of faculty have clear influence over many aspects of faculty work (Becher & Trowler, 2001). Scholars have often conceptualized these disciplinary influences as disciplinary cultures. Perhaps unsurprisingly, as disciplines are centered on particular areas of knowledge and how to examine questions about those areas of knowledge, disciplinary cultures are fundamentally concerned with the norms, practices, attitudes, and beliefs of faculty around the study of knowledge (Becher & Trowler, 2001; Kuh & Whitt, 1988; Umbach, 2007). Because of this orientation, scholars have characterized disciplinary cultures as often the more dominant among faculty, compared to institutional cultures or environments (Clark, 1997), with disciplines largely shaping the content and methods of teaching (Umbach, 2007).

Importantly, disciplinary cultures are not static, but constantly (if slowly) evolving as their members engage with their disciplines in their work (Faulkner et al., 2006; Kuh & Whitt, 1988). As faculty engage with the cultural understandings of their disciplines, they interpret (or

reinterpret) those understandings through individual experiences and understandings (Tierney, 2016). Because of these individual interpretations as well as the interactions between individuals and communities with their environments, disciplinary cultures are continually constructed and reconstructed (Kuh & Whitt, 1988). Despite this gradual evolution, or perhaps because of it, it is generally the cultural understandings of the dominant members of a disciplinary culture that are transmitted to new faculty. It is possibly because of this that Becher and Trowler (2001) described faculty members' engagement with their disciplines and their narratives about their engagement as lending "coherence and relative permanence to academics' social practices, values and attitudes across time and places" (p. 23). Scholars understand this transmission of dominant disciplinary cultural understandings – historically, those of White male faculty – to present challenges to women and faculty of color (Tierney & Rhoads, 1993). This further highlights the importance of faculty autonomy (Gappa et al., 2005), particularly if the use of diverse curricula and inclusive pedagogies are not the norm for a discipline's culture.

Limited past research has considered disciplinary influences on how faculty include or use diverse course content and activities. For instance, Mayhew and Grunwald (2006), examining academic department environments (arguably a proxy for academic disciplines), found that when faculty viewed their departments as more receptive to greater curricular diversity they tended to include more diverse content. Millem (2001), using the Biglan dimensions to examine disciplinary differences, observed that faculty in Soft-Pure disciplines – that is disciplines with less consensus around the nature of knowledge and inquiry and not concerned with practical applications to real world issues – had a higher likelihood of including diversity-related content. Furthermore, Umbach (2006) noted that faculty in certain disciplines (Social and Artistic disciplinary environments) more often engaged students in diversity-related

activities, while Smart and Umbach (2007) found that faculty in Social and Enterprising disciplines placed greater emphasis on students' ability to understand and work through diversity-related issues in their courses.

Guiding Frameworks

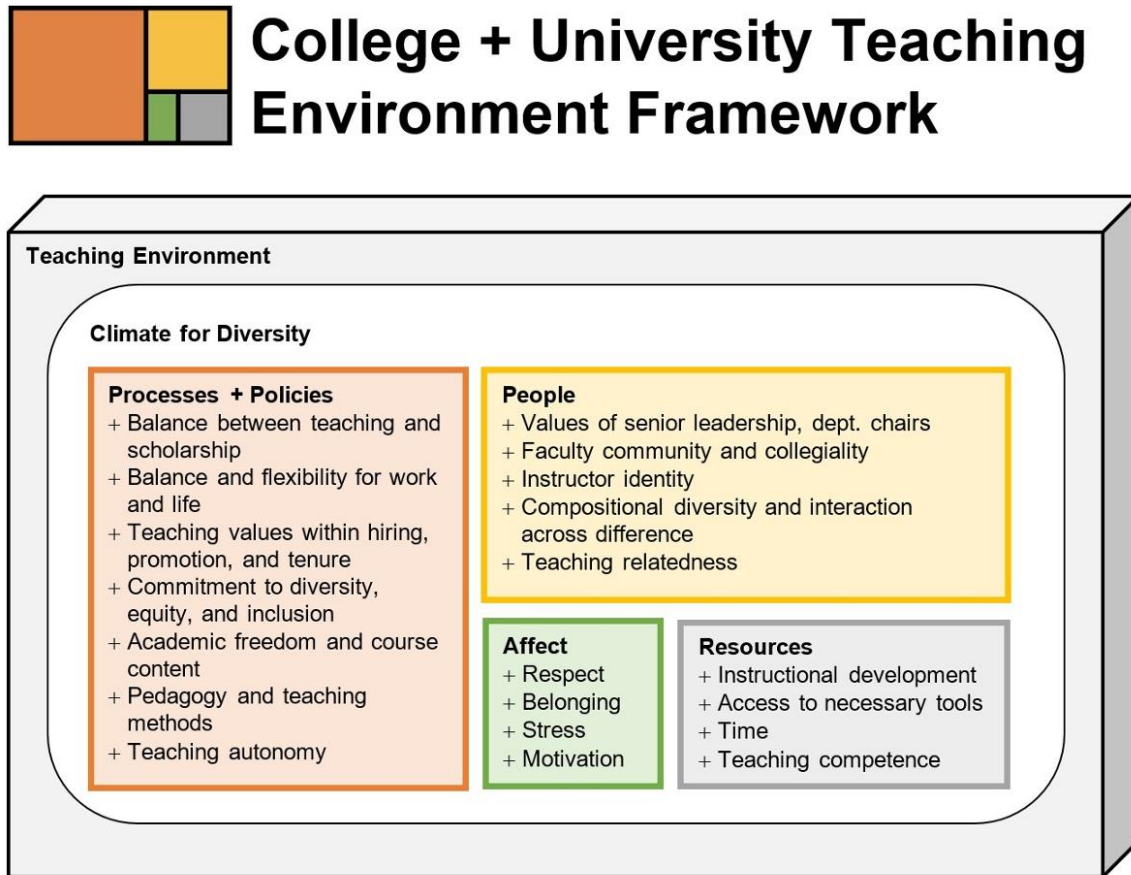
Two frameworks guided this exploratory study: the College + University Teaching Environment (CUTE) framework and the Biglan dimensions (1973a, b). The CUTE framework situates curricular diversity, inclusive pedagogies, and faculty autonomy as important aspects of a healthy teaching environment for diverse faculty to do their best work. The CUTE framework can guide our “understanding of how institutions create teaching environments with the purpose of increasing quality teaching and supporting diverse faculty” (BrckaLorenz et al., 2021, p. 3). This framework is comprised of five critical components of a faculty member's teaching environment and is supported by foundational frameworks for faculty work (Feldman & Paulsen, 1999; Gappa et al., 2005; Hurtado et al., 2012; Ryan & Deci, 2000; 2017). The first component, an institution's overall climate for diversity, is the outer layer of the framework (see Figure 1), and includes historical, compositional, organizational, psychological, and behavioral dimensions (Hurtado et al., 2012). Within this climate for diversity are the four interrelated and necessary pieces of a teaching environment: processes and policies, people (leaders, colleagues, and self), resources and support structures, and affective components (BrckaLorenz et al., 2021).

The primary measures under investigation in this study, curricular diversity, inclusive pedagogy, and teaching autonomy, fall into the processes and policies category of the CUTE framework. The aspects of a teaching environment within this component of the framework are both formal and informal and within the control of the institution or individual faculty member including values for teaching in hiring, promotion, and tenure and flexible and equitable ways to

navigate balance within work tasks and between work and personal life. Specific to this study, a teaching environment is impacted by policies and procedures related to faculty perceptions of institutional values and recognition for inclusion of diversity in the classroom, faculty use of inclusive pedagogies, and perceptions of teaching autonomy in the classroom.

Figure 1

The College + University Teaching Environment Framework



BrckaLorenz, A. (2021). College + university teaching environment framework. Center for Postsecondary Research. <https://cutesurvey.iu.edu>

Disciplinary cultures are another important component of this study, and we chose to use Biglan’s categorizations (1973a, b) of disciplines as a proxy for understanding disciplinary cultures. The Biglan dimensions include the Hard-Soft dimension, where hard disciplines are those with greater paradigmatic development, or consensus around what constitutes core

knowledge and how to study it. The Pure-Applied dimension identifies whether disciplines employ knowledge and inquiry to examine or solve real-world situations and problems (applied disciplines), or not. Lastly, the Life-Nonlife dimension distinguishes whether disciplines that are concerned with living organisms and social systems (life disciplines). Though not theoretically derived, numerous studies (e.g., Simpson, 2017; Smart & Elton, 1982; Stoecker, 1993) have validated their use in understanding disciplinary differences among various aspects of teaching and learning. Applying Kuh and Whitt's (1988) definition of cultures as "the collective, mutually shaping patterns of norms, values, practices, beliefs, and assumptions that guide the behavior of individuals and groups" (p. 12), we argue the Biglan dimensions represent core aspects of disciplinary cultures. Becher and Trowler (2001) considered these dimensions to represent core cognitive aspects of disciplinary cultures, with their clear connections to knowledge and inquiry, and yet, it is important to note that the Biglan dimensions represent socially constructed views of knowledge and inquiry as they relate to faculty practices. Becher and Trowler's discussion suggested this socially constructed nature, for example, by noting that it is possible for hard disciplines to become soft as disciplinary communities' values and practices evolve.

Methods

Data Source and Sample

We used data from the Fall 2021 administration of the CUTE survey. The CUTE survey measures faculty and instructors' perceptions of support for instruction and whether the support from their institutions meets their needs. The sample includes more than 4,000 faculty responses from 20 institutions. The highest proportion of faculty were in Arts & Humanities (24.7%), followed by Health Professions (15.6%). Most faculty identified as women (53.3%), White (69.6%), and straight (81.4%). Equal numbers of faculty identified their rank as Professor

(23.2%) or Associate Professor (23.2%) and the vast majority did not hold an administrative position (75.1%). See Table 1 for additional sample characteristics.

Table 1

Faculty Characteristics

	N	%
Disciplinary Area		
Arts & Humanities	689	24.7
Biological Sciences, Agriculture, & Natural Resources	148	5.3
Business	271	9.7
Communications, Media, & Public Relations	84	3.0
Education	256	9.2
Engineering	105	3.8
Health Professions	435	15.6
Physical Sciences, Mathematics, & Computer Science	270	9.7
Social Sciences	362	13.0
Other disciplines	167	6.0
Academic Rank		
Professor	659	23.2
Associate Professor	659	23.2
Assistant Professor	426	15.0
Instructor or Lecturer	691	24.3
Other academic rank	406	14.3
Gender Identity		
Man	1,183	41.8
Woman	1,509	53.3
I prefer not to respond	137	4.8
Race and ethnicity		
Asian	130	4.6
Black or African American	189	6.7
Hispanic or Latina/o	184	6.5
White	1,966	69.6
Another race or ethnicity	69	2.4
Multiracial	102	3.6
I prefer not to respond	185	6.6
Sexual Orientation		
Straight (heterosexual)	2,299	81.4
LGBQ+	290	10.3
I prefer not to respond	235	8.3
Administrative position		
Yes	701	24.9
No	2,119	75.1

Measures

For our dependent variables, we use three scales from the CUTE survey: perceptions of the value of diversity in the curriculum (*Curricular Diversity*), use of inclusive pedagogies (*Diversity Inclusivity*), and perceptions of the ability to make their own teaching choices (*Teaching Autonomy*). Each scale is the standardized average of the constituent items. Cronbach's alphas were greater than 0.80 for each scale (see Tables 2 for scale details).

Table 2

CUTE Scale Variables: Constituent Items, Coding, and Calculation

Variable Details	Survey Items	N	Range	Mean	SD	α	ICC
<i>Curricular Diversity</i> (mean of 7 items, standardized as Z-scores)	With respect to your courses, how important are the following to you? <i>Response options: 4 Essential, 3 Very important, 2 Important, 1 Somewhat important, 0 Not at all important</i> a. Increasing the inclusion of diversity in your institution's curriculum b. Increasing the inclusion of diversity in your department's curriculum c. Helping students recognize their own cultural norms and biases d. Creating opportunities for students to learn about other cultures e. Creating opportunities for students to discuss issues of equity or privilege f. Helping students include diverse perspectives in course discussions or assignments g. Helping students connect their learning to societal problems or issues	3,155	0-4	2.89	1.02	.951	.022
<i>Diversity Inclusivity</i> (mean of 12 items, standardized as Z-scores)	How much do the following characterize your courses? <i>Response options: 4 Very much, 3 Quite a bit, 2 Some, 1 Very little, 0 Not at all</i> a. Students gain an understanding of how course topics connect to societal problems or issues. b. Students develop skills necessary to work effectively with people from various backgrounds. c. The course content covers contributions to the field by people from multiple cultures. d. The course emphasizes multiple approaches to analyzing issues or solving problems. e. You learn about student characteristics to improve class instruction. f. You explore your own cultural and scholarly biases as part of class preparation. g. You address your potential biases about course-related issues during class. h. You vary your teaching methods to allow for the multiple ways students learn. i. The classroom atmosphere encourages the active participation of all students. j. Students feel empowered in their learning. k. You evaluate student learning using multiple techniques. l. You adjust aspects of the course (e.g., pace, content, or assignments) based on student learning needs.	3,161	0-4	2.97	.65	.888	.041
<i>Teaching Autonomy</i> (mean of 4 items,	As you have been preparing for the fall semester, how often have you felt the following about your teaching? <i>Response options: 4 Very often, 3 Often, 2 Sometimes, 1 Rarely, 0 Never</i>	3,627	0-4	3.07	.66	.819	.021

standardized as Z-scores)	a. A sense of freedom to make my own choices.
	b. My decisions reflect what I really want.
	c. My choices express who I really am as a teacher.
	d. I do what really interests me.

Past research has typically utilized the Biglan categories with specific disciplines (e.g., zoology, anthropology). CUTE asks faculty to identify their general disciplinary area (e.g., arts and humanities, engineering). As the CUTE general disciplinary areas align with how the Faculty Survey of Student Engagement (FSSE), a national large-scale survey that measures faculty perceptions of student engagement, recategorizes specific disciplines (FSSE, n.d.), past research coding specific disciplinary areas (Nelson Laird et al., 2008) was used to impute the Biglan coding of the general disciplinary areas based on the coding of the majority of specific disciplines (e.g., Arts & Humanities coded as soft, pure, nonlife as 100%, 82%, and 91%, respectively, of specific disciplines were coded as such). We excluded social service professions faculty since the Biglan Life/Nonlife dimension was split equally between Life and Nonlife. See Table 3 for complete coding of the disciplinary areas along the Biglan dimensions.

Table 3

Biglan Dimension Coding of General Disciplinary Areas

General Disciplinary Area	Hard/Soft	Pure/Applied	Life/Nonlife
Arts & Humanities	Soft	Pure	Nonlife
Bio, Sciences, Ag., & Natural Resources	Hard	Pure	Life
Business	Soft	Applied	Nonlife
Comm., Media, & Public Relations	Soft	Applied	Nonlife
Education	Soft	Applied	Life
Engineering	Hard	Applied	Nonlife
Health Professions	Hard	Applied	Life
Social Sciences	Soft	Pure	Nonlife
Phys. Sciences, Math., & Computer Science	Hard	Pure	Nonlife
Other disciplines	Soft	Applied	Life

To account for individual faculty characteristics, we used gender identity, sexual orientation, race/ethnicity, academic rank, and whether they held administrative positions. We omitted faculty with another gender identity due to the small sample size (< 1%). We also collapsed American Indian or Alaska Native, Middle Eastern or North African, Native Hawaiian or Pacific Islander into another race or ethnicity category, and categorized bisexual, gay, lesbian, queer, questioning or unsure, another sexual orientation into LGBTQ+ due to small sample sizes (< 2%).

Analysis

We first conducted a descriptive analysis to explore the three aspects of teaching environments (see measures in Table 2). Next, we examined disciplinary differences in faculty teaching environments using Analysis of Variance (ANOVA). We standardized all continuous variables to examine unstandardized coefficients as effect sizes. We also effect-coded the independent variables to interpret the results relative to the overall mean. We then conducted a series of multiple linear regressions with faculty teaching environments as dependent variables and the disciplinary cultures using Biglan dimensions, with controls for faculty characteristics. Finally, we also conducted a series of regression analyses to examine how the interaction of disciplinary cultures and faculty sense of teaching autonomy relates to the importance of diversity in the curriculum and the use of inclusive pedagogies.

Limitations

This study bears several limitations. First, the sample may not represent all colleges and universities as institutions volunteered to participate in the survey, suggesting caution in generalizing results. Second, the use of general disciplinary areas rather than specific disciplines limits a complete understanding of the relationships between disciplinary cultures and faculty

teaching environments. Additionally, we collapsed and removed some faculty from analyses given small sample sizes (nonbinary or gender nonconforming faculty, for example) which limits what we know about the teaching environments of such individuals.

Results

Variation in Faculty Teaching Environments Across Disciplinary Areas

We found a significant difference between disciplinary groups in both faculty perceptions of the value of diversity in the curriculum ($F=60.097, p<.000$) and the use of inclusive pedagogies ($F=32.701, p<.000$). For faculty perceptions of teaching autonomy, although there was a statistically significant difference between groups as determined by one-way ANOVA ($F=1.999, p=.036$), we did not find any statistical significance between groups after conducting a Tukey post hoc test. Additional tests suggest faculty members from education score differently than other groups, but further testing is needed. See Table 4 for complete means by disciplinary area and ANOVA results.

Table 4

Descriptives and ANOVA Results for Three Aspects of Faculty Teaching Environments across Disciplinary Areas

	Curricular Diversity (n=2,777)		Diversity Inclusivity (n=2,780)		Teaching Autonomy (n=2,782)	
F (Sig.)	60.097***		32.701***		1.999*	
	Mean	SD	Mean	SD	Mean	SD
Arts & Humanities	3.17	.86	3.11	.60	3.08	.69
Bio, Sciences, Ag., & Natural Resources	2.45	.92	2.62	.68	2.99	.66
Business	2.57	1.05	2.96	.66	3.14	.64
Comm., Media, & Public Relations	3.24	.78	3.15	.57	3.17	.66
Education	3.29	.84	3.29	.57	3.20	.68
Engineering	2.21	1.18	2.63	.73	3.03	.70
Health Professions	2.93	.95	2.89	.64	3.06	.62
Other disciplines	2.00	1.13	2.61	.65	3.03	.64
Phys. Sciences, Math., & Computer Science	3.23	.77	3.07	.59	3.10	.66
Social Sciences	2.99	.91	2.96	.64	3.05	.66

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

Relationships between Disciplinary Cultures and Teaching Environments

Table 5 presents the relationships between Biglan dimensions, faculty control characteristics, and the three aspects of teaching environments. Regarding curricular diversity, faculty in Nonlife disciplines ($B=0.16$, $p < .001$) or Pure disciplines ($B=-.27$, $p < .001$) were more likely to perceive the value of diversity in the curriculum than faculty in Life disciplines or Applied disciplines, respectively. With respect to diversity inclusivity, faculty in Soft disciplines ($B=.19$, $p < .001$) or Nonlife disciplines ($B= 0.16$, $p < .01$) were more likely to use inclusive pedagogies than faculty in Hard or Life disciplines, respectively. In addition, the results show that the three Biglan dimensions are not significantly related to faculty perceptions of teaching autonomy.

Table 5

Relationship between Faculty Characteristic and the Three Aspects of Faculty Teaching Environments

	Curricular Diversity			Diversity Inclusivity			Teaching Autonomy		
	B	S.E.	Sig.	B	S.E.	Sig.	B	S.E.	Sig.
Biglan Dimension									
Soft Disciplines	.02	.04		.19	.04	***	.05	.04	
Applied Disciplines	-.27	.05	***	-.07	.05		.05	.05	
Nonlife Disciplines	.16	.05	***	.16	.05	**	.01	.05	
Academic Rank									
Professor	-.14	.04	***	-.04	.04		.15	.04	***
Associate Professor	-.08	.03	*	-.10	.04	**	-.12	.04	**
Assistant Professor	.18	.04	***	.13	.04	**	-.03	.04	
Instructor or Lecturer	-.01	.03		.06	.04		.05	.04	
Other academic rank	.05	.04		-.05	.04		-.05	.04	
Gender Identity									
Man	-.17	.04	***	-.09	.05	*	.18	.05	***
Woman	.29	.04	***	.17	.04	***	.03	.04	
I prefer not to respond	-.12	.08		-.09	.08		-.21	.08	*
Racial/Ethnic Background									
Asian	-.22	.08	**	-.21	.08	*	.09	.08	
Black or African American	.19	.07	**	.17	.07	*	.06	.07	
Hispanic or Latina/o	.24	.07	**	.29	.07	***	.23	.07	**
White	-.21	.04	***	-.22	.04	***	-.07	.04	
Another race or ethnicity	.14	.10		.06	.11		-.21	.11	
Multiracial	.08	.09		.06	.09		.09	.09	
I prefer not to respond	-.21	.08	**	-.14	.09		-.19	.09	*

Sexual Orientation							
Straight (heterosexual)	-.06	.04		-.03	.04	.04	.04
LGBQ+	.20	.05	***	-.01	.05	-.08	.05
I prefer not to respond	-.13	.06	*	.04	.06	.04	.06
Administrative position	.08	.04		-.01	.04	.03	.05

Note. * $p < .05$, ** $p < .01$, *** $p < .001$; Note that we used effect coding so that coefficients are not compared to an arbitrary reference group but instead to the average score of faculty in each model.

Relationships Between Teaching Autonomy, Disciplinary Cultures, and Teaching Environments

Table 6 illustrates the relationships between the interactions of disciplinary cultures and faculty sense of teaching autonomy and the two aspects of faculty teaching environments. Our results suggest positive relationships between faculty teaching autonomy and diversity inclusivity and curricular diversity. We found significant relationships between the interactions of disciplinary cultures and faculty sense of teaching autonomy and curricular diversity. Faculty in Soft ($B=.13$, $p<.01$) or Life disciplines ($B=-.10$, $p<.05$) with a better sense of teaching autonomy were more likely to perceive the value of diversity in the curriculum than faculty in Hard or Nonlife disciplines, respectively. However, our results show that the interactions of disciplinary cultures and faculty sense of teaching autonomy were not significantly related to faculty use of inclusive pedagogies.

Table 6

Relationships between the Interactions of Disciplinary Cultures and Faculty Sense of Teaching Autonomy and the Two Aspects of Faculty Teaching Environments

	Curricular Diversity			Diversity Inclusivity		
	B	S.E.	Sig.	B	S.E.	Sig.
Teaching Autonomy	.22	.07	**	.40	.07	***
Biglan Dimension						
Soft Disciplines	.00	.04		.17	.04	***
Applied Disciplines	-.27	.04	***	-.08	.05	
Nonlife Discipline	.17	.05	***	.15	.05	**
Interaction term						
Autonomy-Soft Disciplines	.13	.04	**	.07	.04	
Autonomy-Applied Disciplines	-.3	.05		.02	.04	
Autonomy-Nonlife Discipline	-.10	.03	*	-.01	.05	

Academic Rank						
Professor	-.16	.03	***	-.08	.04	*
Associate Professor	-.06	.03		-.06	.03	
Assistant Professor	.19	.04	***	.14	.04	***
Instructor or Lecturer	-.02	.03		.04	.03	
Other academic rank	.05	.04		-.03	.04	
Gender Identity						
Man	-.20	.04	***	-.15	.04	***
Woman	.29	.04	***	.16	.04	***
I prefer not to respond	-.09	.08		-.02	.08	
Racial/Ethnic Background						
Asian	-.23	.08	**	-.24	.08	**
Black or African American	.19	.07	**	.15	.07	*
Hispanic or Latina/o	.20	.07	**	.21	.07	**
White	-.20	.04	***	-.20	.04	***
Another race or ethnicity	.18	.10		.13	.10	
Multiracial	.05	.08		.02	.09	
I prefer not to respond	-.19	.08	*	-.09	.08	
Sexual Orientation						
Straight (heterosexual)	-.07	.04		-.04	.04	
LGBQ+	.20	.05	***	.01	.05	
I prefer not to respond	-.13	.06	*	.03	.06	
Administrative position	.08	.04		-.02	.04	

Note. * $p < .05$, ** $p < .01$, *** $p < .001$; Note that we used effect coding so that coefficients are not compared to an arbitrary reference group but instead to the average score of faculty in the model.

Discussion and Conclusion

Our results suggest the need for those in higher education to consider the ways that disciplinary cultures affect institutional efforts to improve faculty teaching environments. The ANOVA results highlight that in these three aspects of teaching environments, there is significant variation across general disciplinary areas, and it is possible that greater variation is present than suggested by our findings. Examining such variation by general disciplinary areas likely masks greater variation across more specific disciplines, representing a fruitful area for further study. This is especially important as Mayhew and Grunwald (2006) suggested that departmental climates are more likely to influence faculty incorporation of diversity in the curriculum than broader, institutional environments.

The regression analyses likewise suggest that further study is warranted. It is unsurprising that faculty in Soft disciplines more often utilize inclusive pedagogies. For instance, Nelson Laird (2011) found similar results and Lindblom-Ylänne et al. (2006) found that faculty in soft

disciplines more frequently utilize student-focused approaches. Given that the Hard-Soft dimension showed no relationship with faculty sense of teaching autonomy, it seems unlikely that the difference in use of inclusive pedagogies is due to disciplinary support for faculty teaching autonomy (Ryan & Deci, 2000).

The fact that faculty in Applied disciplines placed less importance on curricular diversity than faculty in Pure disciplines may require further study. Although Mayhew and Grunwald (2006) did not examine disciplines using the Biglan dimensions, instead simply using the faculty departments, their findings suggested that faculty in applied disciplines such as Education incorporated diversity in the curriculum less often while faculty in Engineering incorporated diverse content more often than faculty in other disciplines. Thinking more broadly about other effective teaching practices, such as faculty emphasizing deep approaches to learning in their courses where students are encouraged to think more critically and make more meaningful connections between ideas, research has similarly presented inconclusive results, with some suggesting faculty in Applied disciplines emphasize deep approaches less often than faculty in Pure disciplines (Nelson Laird et al., 2011) while other research has shown faculty in Applied disciplines emphasizing deep approaches more often (Hiller & Nelson Laird, 2021). More interesting is the significant interaction suggesting that with greater levels of faculty autonomy, faculty in Applied disciplines place greater importance on curricular diversity than with lower levels of autonomy. This aligns with the research that indicates that faculty autonomy is necessary to support diverse faculty and students. Further research that could examine disciplines more specifically could help to better understand the nature of these relationships.

Even with accounting for interactions, our results suggest teaching autonomy is strongly related to instructors placing importance on curricular diversity and being inclusive in their

courses. This is a critical finding in and of itself as it suggests that forcing or pressuring instructors into being inclusive will not likely be an effective strategy. Beyond flying in the face of academic freedom, that kind of external influencing does not promote instructors' sense of teaching autonomy, suggesting it would not be effective. Research is needed to understand which strategies are effective in cultivating a greater sense of autonomy so faculty intrinsically want to be more inclusive and thus take actions in those directions.

It is important to note that intrinsic motivation can only be achieved with activities that are intrinsically interesting to people (Ryan & Deci, 2000). This is an important cue for institutions to take when hiring new faculty and in decisions about promotion and tenure. Assessing a faculty member's interest in teaching and then providing them with autonomy are important ingredients for achieving intrinsically motivated educators (Ryan & Deci, 2000). Additionally, Su and Reeve (2011) found that interventions can effectively help people learn to support the autonomy of others including recommendations based on training content (using non-controlling language, acknowledging perspectives and feelings, etc.), training delivery (short sessions with periodic follow-up), and how to address pre-training beliefs, expectations, and values that participants may hold.

Though institutions are important drivers of teaching environments and efforts to improve them (BrckaLorenz et al., 2021), the preliminary findings of this exploratory study align with literature suggesting that disciplines (or departments; Mayhew & Grunwald, 2006) and disciplinary cultures play an important role in shaping the faculty teaching (Becher & Trowler, 2001). If institutional stakeholders are to improve teaching environments, especially around inclusive teaching curriculum, they must be cognizant of disciplinary differences and how disciplinary cultures affect teaching.

References

- Becher, T. & Trowler, P. R. (2001). *Academic tribes and territories: Intellectual enquiry and the culture of disciplines* (2nd ed.). The Society for Research into Higher Education and Open University Press.
- Biglan, A. (1973a). The characteristics of subject matter in different scientific areas. *Journal of Applied Psychology*, 57(3), 195-203. <https://doi.org/10.1037/h0034701>
- Biglan, A. (1973b). Relationships between subject matter characteristics and the structure and output of university departments. *Journal of Applied Psychology*, 57, 1204-1213. <https://doi.org/10.1037/h0034699>
- Bowman, N. A. (2009). College diversity courses and cognitive development among students from privileged and marginalized groups. *Journal of Diversity in Higher Education*, 2(3), 182–194. <https://doi.org/10.1037/a0016639>
- BrckaLorenz, A., Brandon, J., & Nelson Laird, T. (2021). Environments that motivate teaching excellence: The College + University Teaching Environment framework (Paper Presentation). Annual meeting of the Association for the Study of Higher Education (ASHE), San Juan, Puerto Rico.
- BrckaLorenz, A., Yuhas, B., & Stupnisky, R. (2017). Why do we teach? Examining faculty teaching experiences and motivation. Program presented at the 2017 POD Network conference, Montreal, Quebec. <http://hdl.handle.net/2022/24386>
- Clark, B.R. (1997). Small worlds, different worlds: The uniqueness and troubles of American academic professions. *Daedalus*, 126(4), 21-42.
- Cole, D. (2007). Do interracial interactions matter? An examination of student-faculty contact and intellectual self-concept. *The Journal of Higher Education*, 78(3), 249-281.

- Cress, C.M. (2008). Creating inclusive learning communities: The role of student-faculty relationships in mitigating negative campus climate. *Learning Inquiry*, 2, 95-111.
- Denson, N. (2009). Do curricular and cocurricular diversity activities influence racial bias? A meta-analysis. *Review of Educational Research*, 79(2), 805–838.
<https://doi.org/10.3102/0034654309331551>
- Engberg, M. E. (2004) Improving intergroup relations in higher education: A critical examination of the influence of educational interventions on racial bias. *Review of Educational Research*, 74(4), 473–524.
- Engberg, M. E., Hurtado, S., & Smith, G. C. (2007). Developing attitudes of acceptance toward lesbian, gay and bisexual peers: Enlightenment, contact, and the college experience. *Journal of Gay & Lesbian Issues in Education*, 4(3), 49–77.
https://doi.org/10.1300/J367v04n03_05
- Faulkner, S.L., Baldwin, J.R., Lindsley, S.L., & Hecht, M.L. (2006). Layers of meaning: An analysis of definitions of culture. In J. R. Baldwin, S. L. Faulkner, M. L. Hecht, & S. L. Lindsley (eds.) *Redefining Cultures: Perspectives across Disciplines* (pp. 27-52). Lawrence Erlbaum Associates, Inc.
- Feldman, K. A., & Paulsen, M. B. (1999). Faculty Motivation: The Role of a Supportive Teaching Culture. *New directions for teaching and learning*, 78, 71-78.
- Gappa, J. M., Austin, A. E., & Trice, A. G. (2005). Rethinking academic work and workplaces. *Change*, 37(6), 32-39. <https://doi.org/10.3200/CHNG.37.6.32-39>.
- Hiller, S. & Nelson Laird, T. F. (2021, April). *Disciplinary differences in faculty emphasis on deep approaches to learning: Comparing conceptualizations of academic discipline*.

Paper presented at the Annual Meeting of the American Educational Research Association, Online.

Hurtado, S., Alvarez, C. L., Guillermo-Wann, C., Cuellar, M., & Arellano, L. (2012). A model for diverse learning environments: The scholarship on creating and assessing condition for student success. In J. C. Smart & M. B. Paulsen (Eds.), *Higher Education: Handbook of Theory and Research* (Vol. 27, pp. 41-122). Springer. https://doi.org/10.1007/978-94-007-2950-6_2

Kuh, G. D., & Whitt, E. J. (1988). *The invisible tapestry: Culture in American colleges and universities*. The George Washington University.

Lattuca, L. R. & Stark, J. S. (2009). *Shaping the college curriculum: Academic plans in context* (2nd edition). Jossey-Bass.

Lindblom-Ylänne, S., Trigwell, K., Nevgi, A., & Ashwin, P. (2006). How approaches to teaching are affected by discipline and teaching context. *Studies in Higher Education*, 31(3), 285-298. DOI: 10.1080/03075070600680539.

Marin, P. (2000, May). The educational possibility of multi-racial/multi-ethnic college classrooms. In *Does diversity make a difference? Three research studies on diversity in college class-rooms* (pp. 61–83). American Council on Education and American Association of University Professors.

Mayhew, M.J. & Grunwald, H.E. (2006). Factors contributing to faculty incorporation of diversity-related course content. *The Journal of Higher Education*, 77(1), 148-168. <https://doi.org/10.1080/03075070600680539>

- Mayhew, M.J., Grunwald, H.E., & Dey, E.L. (2005). Curriculum matters: Creating a positive climate for diversity from the student perspective. *Research in Higher Education*, 46(4), 389-412. <https://doi.org/10.1007/s11162-005-2967-0>
- Millem, J.F. (2001). Increasing diversity benefits: How campus climate and teaching methods affect student outcomes. In G. Orfield (Ed.), *Diversity challenged: Evidences on the impact of affirmative action* (pp. 233-249). Harvard Education Publishing Corp.
- Nelson Laird, T.F. (2011). Measuring the diversity inclusivity of college courses. *Research in Higher Education*, 52, 572-588. <https://doi.org/10.1007/s11162-010-9210-3>
- Nelson Laird, T. F. (2014). Reconsidering the inclusion of diversity in the curriculum. *Diversity and Democracy*, 17(4), 12-14.
- Nelson Laird, T. F. & Engberg, M. E. (2011). Establishing differences between diversity requirements and other courses with varying degrees of diversity inclusivity. *Journal of General Education*, 60, 117-137. <https://doi.org/10.5325/jgeneeduc.60.2.0117>
- Nelson Laird, T. F., Shoup, R., Kuh, G. D., & Schwarz, M. J. (2008). The effects of discipline on deep approaches to student learning and college outcomes. *Research in Higher Education*, 49, 469-494.
- Prosser, M. & Trigwell, K. (1997). Relations between perceptions of the teaching environment and approaches to teaching. *British Journal of Educational Psychology*, 67, 25-35.
- Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology*, 25(1), 54-67. <https://doi.org/10.1006/ceps.1999.1020>
- Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness*. New York: Guildford Publications.

- Sanger, C.S. (2020). Inclusive pedagogy and universal design approaches for diverse learning environments. In *Diversity and Inclusion in Global Higher Education*, C.S. Sanger & N.W. Gleason (Eds.), pp. 31-71. Palgrave Macmillan.
- Simpson, A. (2017). The surprising persistence of Biglan's classification scheme. *Studies in Higher Education*, 42(8), 1520-1531. <https://doi.org/10.1080/03075079.2015.1111323>.
- Smart, J.C. & Elton, C.F. (1982). Validation of the Biglan model. *Research in Higher Education*, 17, 213-229.
- Stoecker, J.L. (1993). The Biglan classification revisited. *Research in Higher Education*, 34(4), 451-464.
- Stupnisky, R. H., BrckaLorenz, A., Yuhas, B., & Guay, R. (2018). Faculty members' motivation for teaching and best practices: Testing a model based on self-determination theory across institution types. *Contemporary Educational Psychology*, 53 (2018), 15-26. <https://doi.org/10.1016/j.cedpsych.2018.01.004>
- Su, Y.-L. & Reeve, J. (2011). A meta-analysis of the effectiveness of intervention programs designed to support autonomy. *Educational Psychology Review*, 23, 159-188. <https://doi.org/10.1007/s10648-010-9142-7>
- Tierney, W. G. (2016). *The impact of culture on organizational decision-making: Theory and practice in higher education*. Stylus Publishing, LLC.
- Tierney, W.G. & Rhoads, R.A. (1993). *Faculty Socialization as Cultural Process: A Mirror of Institutional Commitment*. ASHE-ERIC Higher Education Report No. 93-6. The George Washington University, School of Education and Human Development.

Tuitt, F. (2003). Afterword: Realizing a more inclusive pedagogy. In A. Howell & F. Tuitt

(Eds.), *Race and higher education: Rethinking pedagogy in diverse classrooms*. Harvard Educational Review.

Umbach, P.D. (2006). The contribution of faculty of color to undergraduate education. *Research in Higher Education* 47(3), 317–345.

Umbach, P. D. (2007). Faculty cultures and college teaching. In R.P. Perry and J.C. Smart (Eds.), *The scholarship of teaching and learning in higher education: An evidence-based perspective*, 263–317.