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A case study in teaching inclusive teaching

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Abstract

As the college student population grows increasingly diverse, there is a need for instructors—including graduate student instructors (GSIs)—to have a set of pedagogical tools that enables them to create inclusive classroom environments, those that consider their students' identity and provide equal opportunities for learning. However, the literature on how to support GSIs develop these skills is still nascent. In this article, we report on two strategies—one diffuse and one direct—we used while training GSIs and the ways in which they changed GSIs' understanding of what inclusive teaching entails. We find that our direct model might have increased GSIs' awareness of how students' identities shape their learning experiences and include some reflections and contextual information for this finding.

Keywords: inclusive teaching, graduate student instructors, training, equity

The college student population at (4-year) universities across the country is growing increasingly diverse (Renn & Reason, 2013; Snyder & Dillow, 2013), a trend that is expected to continue in future years. As a

result, students are entering college classrooms with varying levels of academic preparation and of prior exposure to the norms of higher education (Chen & Carroll, 2005; Stephens et al., 2012). If (4-year) colleges are interested in retaining these students, in attracting more students to their campuses, and in providing them high-quality learning experiences, university administrators and faculty must pay attention to meeting these students' needs in their classrooms. Gannon (2020), in fact, argues that universities cannot proclaim to be the "engine driving the changes necessary to create a better world" (p. 56) without creating welcoming and inclusive learning environments.

In this context, some university faculty have worked to meaningfully improve diversity and inclusion-based pedagogical professional development, including by drawing on the research on stereotype threat, to improve the learning environments for their more diverse student bodies (Artze-Vega et al., 2014; Killpack & Melón, 2016; Sathy & Hogan, 2019). While this literature points clearly to the beliefs and practices that might help facilitate more inclusive learning environments, the evidence for how to scale such efforts—and how to train new instructors to create more inclusive spaces—remains sparse (Artze-Vega et al., 2014; Dewsbury, 2017). Our article aims to bridge this gap by drawing on our work in our university's center for teaching and learning (CTL) to answer the following questions:

1. What are some models for training new graduate student instructors (GSIs) in inclusive teaching?
2. Which, if any, of the models change the conceptions of GSIs about inclusive teaching?

What Do We Mean by Inclusive Teaching?

There are two groups of people whose work we have drawn on to come to our own definition of inclusive teaching. First, we have been influenced by the work of scholars focusing on inclusive teaching and

learning, particularly because they describe inclusive teaching as something broader than a set of specific practices—it is, rather, an approach to teaching that focuses on students and is concerned with equity. Dewsbury (2017), for instance, describes it as "a philosophy of teaching that provides equal opportunities for all students to have a successful learning experience" (p. 2). Relatedly, Hockings (2010) writes, "Inclusive learning and teaching in higher education refers to the ways in which pedagogy, curricula, and assessment are designed and delivered to engage students in learning that is meaningful, relevant, and accessible to all. It embraces a view of the individual and individual difference as the source of diversity that can enrich the lives and learning of others" (p. 1).

As the Hockings definition suggests, many scholars of teaching and learning center the perspectives, experiences, and identities of students as central to their conceptualizations of inclusive teaching. In fact, Tanner (2013) makes this explicit by writing, in the context of biology classrooms:

> Equity, then, is about striving to structure biology classroom environments that maximize fairness, wherein *all* students have opportunities to verbally participate, *all* students can see their personal connections to biology, *all* students have the time to think, *all* students can pose ideas and construct their knowledge of biology, and *all* students are explicitly welcomed into the intellectual discussion of biology. (p. 322)

We see these principles as applicable to classrooms across all disciplines.

The second group of people who have written about inclusive teaching and learning are the communities of practitioners at CTLs across universities. Unsurprisingly, examples from CTLs follow similar themes to those from the scholarship on teaching and learning. In our view, the operationalizations offered by CTL teams differ from definitions in the scholarly literature in the specificity of how the definitions are leveraged, with a focus on the actions and teaching strategies instructors employ in their classrooms. For instance, the Derek Bok Center for Teaching and Learning at Harvard University (n.d.) emphasizes instructors' awareness. On their web page, they state, "Inclusive

teaching involves cultivating awareness of the dynamics that shape classroom experiences and impact learning. It also involves being responsive to these dynamics and intentional about using strategies, or inclusive moves, that foster a productive learning environment." Relatedly, the Harriet W. Sheridan Center for Teaching and Learning at Brown University (n.d.) focuses on instructor intentionality in their conceptualization of inclusive teaching: "Inclusive teaching is an explicit intellectual and affective inclusion of all students into our fields and disciplines, through course content, assessment, and/or pedagogy."

In a slightly different framing, the Center for Research on Learning and Teaching at the University of Michigan (n.d.) focuses their definition of inclusive teaching on the type of learning environment that instructors can and should create:

> Inclusive teaching involves deliberately cultivating a learning environment where all students are treated equitably, have equal access to learning, and feel valued and supported in their learning. Such teaching attends to social identities and seeks to change the ways systemic inequities shape dynamics in teaching-learning spaces, affect individuals' experiences of those spaces, and influence course and curriculum design.

Notably, staff from Michigan have written about their Diversity and Inclusive Teaching seminar, which aims to prepare and support GSIs to design and implement inclusive courses using a social justice framework (Daniels & Schoem, 2020).

We choose to highlight definitions from the CTLs at Harvard, Brown, and Michigan because they were easily accessible to us when we began this project during the 2016–2017 school year (we describe our work in greater detail below) and informed our thinking over the course of this work. We are encouraged and excited by the fact that many more CTLs have published their working definitions of inclusive teaching in recent years and that scholars and practitioners at these centers are adapting definitions to help them serve their students more effectively.

Table 1. Similarities and Differences in Definitions of Inclusive Teaching Between Scholarship on Teaching and Learning and CTL Practitioners

Similarities	Differences
• Scholars and practitioners believe that inclusive teaching hinges on conscious awareness and willingness of instructors to incorporate specific approaches/practices into their classrooms. • Scholars and practitioners center the perspectives, experiences, and identities of students.	• Scholarship emphasizes inclusive teaching as a broad approach that emphasizes equity; practitioners attend to specific actions and teaching strategies.

Our Operationalization of Inclusive Teaching

Drawing on the two strands of literature (and practice) on inclusive teaching, we determined that inclusive teaching is composed of two elements: (a) teaching that considers how student positionality may shape that individual's ability to access learning and (b) teaching that provides equal opportunity for all students to the learning experience in a classroom. As we outline in further detail below, to capture these two elements, we focused our attention on GSIs' articulated *awareness* of how students' identities may shape their learning experiences and the *strategies* they plan to use in their classrooms.

Context for Our Work

At Princeton University, where we conducted this work, all first-time GSIs are required to complete a two-day orientation and training for their teaching responsibilities. Similar to other universities, our orientation is one component of pedagogical training offered to GSIs. Other opportunities for teaching development include stand-alone workshops and trainings on a variety of pedagogical topics (e.g., grading student writing, increasing student participation, creating group activities/assignments) as well as a teaching certificate program (von Hoene, 2020). Some of these opportunities focus on GSIs exclusively; others invite GSIs to join faculty professional development initiatives.

The work we present here comes from interventions that took place during GSI orientation. Hosted by our campus CTL, this orientation and training is offered before the start of each semester. This article draws on our work over two orientation sessions—in the spring of 2017 (i.e., the second half of the 2016–2017 academic year) and the fall of 2017 (i.e., the first half of the 2017–2018 school year).

In the spirit of peer teaching and consulting programs at other universities (Theisen et al., 2020), Princeton's GSI orientation and training are led by trained GSI leaders in departmental or disciplinary cluster groups. GSI leaders typically have at least a full year's teaching experience and apply to or are recruited for this position. As part of their centralized training in our CTL, GSI leaders are given a set of learning outcomes and an archive of past lesson plans for GSI orientation but are invited to create their own plans, responding to best practices gleaned from the literature (Henderson & Dancy, 2008), their training and disciplinary norms, and their departmental teaching cultures. Staff from our CTL provide feedback on new lesson plans created by our GSI leaders prior to orientation. Typically, there are 25 GSI leaders each semester who each work with groups of approximately 12 new GSIs. On the first day of orientation, GSI leaders facilitate workshops, and on the second day, participants engage in microteaching, giving and responding to feedback from peers and the GSI leaders.

Increasing Attention to Inclusive Teaching

During the 2016–2017 school year, our CTL launched an "Inclusive Teaching at Princeton University" series, a cross-campus initiative to promote conversations about and awareness of best practices for inclusive teaching. Under the umbrella of this initiative, a group of GSI leaders (all of whom had led at least one GSI orientation in the past) gathered to promote inclusive teaching practices among GSIs across campus. In addition to designing mid-semester workshops and leading conversations to highlight inclusive teaching practices, these GSI leaders initiated a project to more systematically assess the ways

in which training around inclusive teaching practices could shape the teaching philosophy and practices of new GSIs—the result of which is this article. This was an interdisciplinary group that included social scientists, natural scientists, engineers, and those in the humanities, all of whom brought varied skills and perspectives to the work.

Historically, as preparation to lead their orientation sessions, GSI leaders were trained in student-centered and active learning pedagogies and tasked with introducing those approaches and strategies to the new GSIs in their charge. As part of the increased attention to inclusive teaching during the 2016–2017 school year, we began to include additional training around this topic for GSI leaders. This included attention to the concepts of stereotype threat, drawing on Claude Steele's *Whistling Vivaldi*, as others have done (Artze-Vega et al., 2014); unconscious bias; and growth mindset for students and teachers alike. Our CTL was interested in having conversations with GSI leaders around the implications of these findings for creating inclusive classrooms.

GSI leaders drew on this information as they planned their orientation and training sessions for new GSIs, in January 2017 and September 2017. Because of the way in which we changed our instructions to GSI leaders as they prepared for each of these trainings, we created the context to examine two separate models for introducing new GSIs to the concept and practice of inclusive teaching. It is important to note that neither of these models were prescriptive—as with our approach to GSI orientation more broadly, GSI leaders were given guidelines and encouraged to customize their lesson plans for the new GSIs they were training.

Spring 2017: Diffuse Model

In preparation for new GSI orientation at the beginning of this semester, we asked a subset of GSI leaders to script an activity related to inclusive teaching. While we did provide these GSI leaders with a set of learning outcomes for GSI orientation more broadly and past lesson

plans (as described above), we did not provide any other formal support. CTL staff informally shared some general, high-level guidelines that GSI leaders could pass on to new GSIs (e.g., "good teaching is inclusive teaching" and "there is no 'recipe' for inclusive teaching"), but we did not specify the type or duration of the activity. This led, unsurprisingly, to different ways of engaging new GSIs with inclusive teaching. For instance, some GSI leaders developed activities that named stereotype threat and/or unconscious bias and asked new GSIs to plan specific strategies to make their classrooms more inclusive while others discussed the ideas (of stereotype threat) in general without connecting them to classroom practices. Because of its relative lack of structure, we refer to this as our *diffuse* model for teaching new GSIs about inclusive learning.

Fall 2017: Direct Model

For the GSI orientation in the fall of 2017, we recruited a small group of GSI leaders to implement a specific activity during their orientation sessions. We asked these GSI leaders to play the "time traveler game" introduced to one of the authors at the POD Network's annual conference (Hoffmann-Longtin & Rossing, 2016) during their orientation sessions. In the game, one partner is receiving the other (the time traveler) who has come from deep in the past. The partners role-play a scenario in which the current partner has to convince the time traveler to do something relatively mundane but entirely foreign to them (e.g., get an x-ray for a broken arm). The role-playing helps show the participants that they have the human skills to connect to very different people and are able to teach them something despite their differences.

The role-playing is used as a gateway to address harder topics in diversity, equity, and inclusion after giving participants confidence that they could take on similar tasks in the classroom and highlighting the impact that individual difference can have on the learning process. We did not script specific discussion topics or activities as a part of this follow-up conversation to the time traveler game. Instead, we asked

GSI leaders to craft discussion topics or questions to meet the specific needs of their new GSIs and/or department contexts in consultation with one another. In response, some GSI leaders focused the conversation on salient and invisible aspects of their own identity while others focused on inclusive strategies more broadly. Please refer to Appendix A for a sample lesson plan, which illustrates one way in which the time traveler game was implemented. Because of its more explicit structure in raising issues related to inclusive teaching, we refer to this as our *direct* model for teaching new GSIs about inclusivity.

Data and Methods

Although we had two models for introducing new GSIs to inclusive teaching and learning, our process for collecting data remained the same in the spring and fall of 2017. During both orientation sessions, we began by asking new GSIs to submit their own definitions of inclusive teaching (anonymously, on an index card) as their first activity after introductions. Then, at the end of orientation on the second day, new GSIs were also anonymously surveyed for their feedback about the orientation; as a part of this survey, we again asked them to submit their definition of inclusive teaching. Since the surveys were completed in their disciplinary or departmental cluster groups, which are attached to a specific GSI leader, we were able to tell whether the new GSIs received information about inclusive teaching through the diffuse model (in the spring) or the direct model (in the fall) or did not receive an introduction to inclusive teaching practices at all (in the spring or fall).

We compiled two data sets consisting of the definitions of inclusive teaching provided by new GSIs—one for new GSIs' definitions at the beginning of their orientation (Table 1) and one for their responses at the end of orientation (Tables 2 and 3). Using this data, we conducted a content analysis (Hsieh & Shannon, 2005) of new GSIs' definitions of inclusive teaching. As Table 1 shows, our data consist of 80 definitions of inclusive teaching in the spring and 276 definitions in the fall.

Generating Codes for Content Analysis

Drawing on our definition of inclusive teaching, the codes we used to analyze GSI responses were developed deductively and inductively in a series of conversations we had as this project developed and evolved. We began by determining what we might *expect* to see in GSI responses that conveyed an understanding of inclusive teaching (practices). We examined some responses from the Spring 2017 orientation with our initial codes, which led us to revise the codes. After two rounds of defining and coding small samples and consulting the literature, we settled on three categories of responses: those that showed *awareness* of inclusive teaching, those that outlined *actions* that would foster inclusive teaching, and those that *rejected* inclusive teaching.

Each definition of inclusive teaching was coded on all three categories of responses. To capture awareness of inclusive teaching, we examined the response's attention to issues of diversity, identity, and their impact on learning. In order to be coded as outlining actions, the definition statement should have referenced inclusive teaching strategies. Finally, definitions of inclusive teaching that were coded for rejection included opposition to inclusive teaching principles or practices. Within each of these categories, definitions of inclusive teaching were classified by the degree to which they demonstrated awareness, actions, and rejection. More specifically, definitions could demonstrate concrete, vague, or no references to awareness, actions, or a rejection of inclusive teaching. Please refer to Appendix B for the instructions and examples we developed for coders to use.

One author coded all of the data from the end of orientation, for spring and fall; this author, with another author, coded the pre-orientation data, for spring and fall. The pre-orientation data was coded after the post-orientation data; there was an inter-rater reliability of over 80% between the two coders. Where there was disagreement, the two coders discussed differences and arrived at mutually agreeable codes. As a final part of our data analysis, the two data sets and their associated codes were loaded into the statistical analysis program R for analysis.

Results

The results we present here come from two-tailed *t*-tests assuming unequal variances to examine differences between groups. We first examine how, if at all, the definitions collected before orientation for new GSIs was different in the spring relative to the fall; we then examine whether definitions of inclusive teaching changed among those who received one of the two models of inclusive teaching instruction relative to new GSIs who did not receive any instruction regarding inclusive teaching.

Understanding Differences Between the Fall and Spring Results

In the first part of our analysis, we examined whether new GSIs' definitions of inclusive teaching, prior to participating in orientation, were different in the spring relative to the fall. We were interested in knowing whether ongoing campus programming around inclusive teaching might have shifted understandings of inclusivity that new GSIs brought with them to their orientation. As Table 2 shows, there were no significant differences between spring and fall definitions in reflecting awareness of diversity, identity, and their impact on student learning. Roughly a fifth of definitions—in the spring and fall—were concretely aware of these issues, and about half showed a vague awareness.

In contrast, we found statistically significant differences in GSIs' reference to actions or strategies in defining inclusive teaching.

Table 2. Percentage of Inclusive Teaching Definitions Prior to Orientation by Code

	Awareness			Action			Rejection		
	Concrete	Vague	None	Concrete	Vague	None	Concrete	Vague	None
Spring 2017 *N* = 80	19.4	54.8	25.8	4.3	53.8	41.9	1.1	3.2	95.7
Fall 2017 *N* = 276	20.2	53.6	25.8	6.0	68.5**	25.5**	0.4	203	97.4

* $p < 0.1$. ** $p < 0.05$.

Table 3. Percentage of Inclusive Teaching Definitions After Orientation by Code—Diffuse Model (Spring 2017)

	Awareness			Action			Rejection		
	Concrete	Vague	None	Concrete	Vague	None	Concrete	Vague	None
All definitions *N* = 80	7.5	46.3	46.3	27.5	55.0	17.5	0.0	2.5	97.5
No inclusive teaching *N* = 46	6.5	52.2	41.3	30.4	52.2	17.4	0.0	4.4	95.7
Diffuse inclusive teaching *N* = 34	8.8	38.2	52.9	23.5	58.8	17.7	0.0	0.0	100

* $p < 0.1$. ** $p < 0.05$.

Definitions that new GSIs provided prior to orientation in the fall of 2017 were more likely to vaguely reference actions they could take and less likely to have no actions relative to definitions in the spring. For instance, 69% of definitions contained a vague reference to inclusive teaching strategies in the fall relative to just over half in the spring. An open question for us is whether these differences are driven by the ways in which new GSIs were asked to define inclusive teaching. GSIs in the spring were told to complete the prompt "To be an inclusive teacher . . . " whereas GSIs in the fall were asked to answer the question "How would you define inclusive teaching today?"

How Did the Two Models Fare?

Table 3 compares the ways in which, at the end of the spring orientation, new GSIs' definitions of inclusive teaching varied based on the type of introduction to inclusive teaching they received. We see that, for instance, while 7.5% of all definitions demonstrated a concrete awareness of diversity, identity, and their impact on learning, rates of concrete awareness were lower among new GSIs who did not receive any introduction to inclusive teaching (6.5%) relative to those who received an introduction to inclusive teaching through the diffuse

Table 4. Percentage of Inclusive Teaching Definitions After Orientation by Code—Direct Model (Fall 2017)

	Awareness			Action			Rejection		
	Concrete	Vague	None	Concrete	Vague	None	Concrete	Vague	None
All definitions *N* = 276	12.0	56.9	30.8	3.3	63.8	33.0	0.7	3.3	95.7
No inclusive teaching *N* = 223	11.2	55.2	33.2	3.1	62.8	34.1	0.0	4.0	95.5
Direct inclusive teaching *N* = 53	15.1	64.2	20.8*	3.8	67.9	28.3	3.8	0.0**	96.2

* $p < 0.1$. ** $p < 0.05$.

model (8.8%). Taken together, the results in Table 3 indicate that there were no statistically significant differences between the two groups of new GSIs in the spring of 2017. Put differently, GSIs who received the diffuse training in inclusive teaching did not report definitions of inclusive teaching that were significantly different than their counterparts who did not receive any training in inclusive teaching.

In a divergence from the spring patterns, Table 4 shows that, in the fall, there were significant differences between the definitions that new GSIs provided based on whether they were introduced to inclusive teaching practices. More specifically, we found that significantly fewer GSIs reported no awareness of the ways in which diversity and identity might impact learning if they participated in the time traveler activity, our direct model for introducing new GSIs to inclusive teaching. In concrete terms, a third of the definitions provided by new GSIs who did not receive an introduction to inclusive teaching did not indicate an awareness of diversity, identity, and their impact on student learning; rates were significantly lower (about a fifth) among GSIs who were introduced to inclusive teaching in the fall. In addition, significantly fewer new GSIs also offered vague rejections to the concept of inclusive teaching if they participated in the time traveler activity during the fall of 2017. It appears that the direct model of introducing new GSIs

to inclusive teaching might have moved the needle on increasing their awareness of the issues central to the topic.

Discussion

Although the main results of our analyses suggest that, in the aggregate, the direct model for introducing new GSIs to inclusive teaching might reduce their lack of awareness, it is not clear that it is necessarily the best model for all contexts. In order to nuance this finding, we discuss some reasons for key distinctions in the definitions new GSIs provided for inclusive teaching and discuss how other practitioners and scholars might be able to build on our work to advance our capacity to train new GSIs to be more inclusive teachers.

How Do GSIs Demonstrate Awareness?

As part of our coding process to capture awareness, we had two criteria we were seeking for concrete awareness: that the definition mention specific group identities or include a discussion of how students' identities affect student learning. We intentionally left the term *group identities* undefined. Notably, we found that new GSIs who mentioned specific groups in their definitions of inclusive teaching did so in one of two categories. There were definitions that cited the differences in learning experiences due to race, religion, or gender, of which the following is an example:

> Teaching that ensures that no student is marginalized from the class room [*sic*], especially on the basis of identity (e.g., class, gender, race, ethnicity, etc.)

The second set of definitions highlighted differences in group identities due to learning preferences or abilities, such as:

> Making an effort to engage students of all dispositions (shy, assertive, etc.). Trying to determine students' learning styles and catering to them.

There were very few responses that cited both and were coded concrete in the awareness category.

Our hypothesis is that this difference likely correlates with new GSIs' race or ethnicity and/or disciplinary background. Social scientists have previously shown how it is especially difficult for White people to talk about differences due to race or ethnicity (DiAngelo, 2011), which may lead more of the GSIs who identify as White to more frequently cite differences due to learning preference or ability. Similarly, new GSIs from disciplines that tackle issues and inequities by race or ethnicity, gender, sexuality, and so forth might have been more attentive to the ways in which those factors could shape their students' learning experiences. If this study were to be conducted again, collecting some demographic data alongside participant responses, and tracking their responses from before to after orientation, would be a compelling way to test our hypotheses.

The Future of Inclusive Teaching-Oriented Professional Development

The ways in which graduate students articulate their awareness of different identities raise important questions about whether (and how) training on inclusive teaching should highlight specific student identities. Our findings point to the potential of the direct model—where GSI leaders implement a similar activity in their disciplinary or departmental clusters—to shift the ways in which new instructors conceptualize inclusive teaching. Yet even in this more targeted model, the time traveler game merely allowed new GSIs to recognize that they have the ability to understand how difference can affect student learning and that they have the skills to reach students where they are at, despite differences in experience. Because the difference of experience in this exercise is intentionally absurd, the game is a relatively blank slate that allows GSI leaders to segue into a discussion about inclusive teaching as they feel is appropriate for their discipline or department. Were we to additionally require GSI leaders to specifically talk about types of identities that

affect the ways students access the classroom, we might expect a shift in how participants defined inclusive teaching in a way that highlights their awareness of these categories of identity. For our colleagues at CTLs who are considering implementing their own inclusive teaching trainings that may use a specific exercise across multiple facilitators, we would recommend determining whether referring to specific group identities during that exercise is an important aspect of the training provided.

Use of GSI Leaders for Our Study

While we hope other CTLs will implement training in inclusive teaching for their new GSIs and faculty, we also hope they will continue to study the effectiveness of various strategies. As a way to carry out this work without an assessment professional, we hope our lessons on working with GSI leaders prove useful. In our work, GSI leaders helped to formulate research questions, planned and organized data collection, and carried out the data analysis.

Though this approach had its downsides—coordinating an interdisciplinary group of graduate students for an intensive project was challenging, and many in the group were learning how to carry out a qualitative research project along the way—we found this approach to be of interest to other centers for three major reasons. The first is that bringing in graduate students can help to supplement the subject matter expertise of the CTL with those of the graduate students' own disciplinary methods. In our case, we collaborated with GSI leaders in the social sciences to help design the study and develop the methods of data analysis. The second reason is that collaborating with GSI leaders allowed the center to expand the scope and size of the project in a way that would have been impossible with only full-time personnel. Although the group of graduate students active in the project fluctuated slightly over time, having five to seven students available to help across disciplines and programs allowed for this work to be distributed and continue to progress more consistently. Finally, this project provided a rich professional development experience to our graduate

students, giving the group of GSI leaders perspective into the inner workings of a center; providing them an opportunity to develop assessment skills outside their disciplinary area; and granting them the agency to propose and implement real change.

Looking to the Future

At the core of our work was a desire to ensure that more classrooms at our university were truly inclusive and reflective of the skills and perspectives of an increasingly diverse student body. Our work captured small but important shifts in how new GSIs understood inclusive teaching. This is important because instructors' perspectives play an important role in their practice (Gay, 2013; McPhail & Costner, 2004), and, arguably, by shifting the ways in which GSIs conceptualize inclusive teaching, we believe that we have a preliminary perspective on their potential to develop inclusive spaces.

These results motivate us to continue focusing on inclusive teaching practices in the professional development opportunities we offer GSIs and faculty at our university—and we hope the same is true for our colleagues at other CTLs as well. Furthermore, these results encourage us to continue investigating *mediated* approaches to fostering professional development in inclusive teaching. In other words, although our efforts focused on the work of GSI leaders in supporting new GSIs, we can imagine the potential usefulness of similar practices with faculty leaders (who understand disciplinary contexts and department cultures). As this work matures, we hope to move from simply shifting participants' perceptions or beliefs to meaningfully improving their teaching practice and, ultimately, student experiences and learning.

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Appendices

Appendix A: Time Traveler Game Lesson Plan

Time Traveler Game (15 minutes)

Purpose: Practice meeting your students where they are, lead in to inclusive practices

- "In this ice breaker, you'll be playing a role playing game with a partner. It doesn't matter who goes first as you will both of you will play both roles. So…"
- (> **Slide 1**) Find a partner (hopefully at your table/in your vicinity) and decide who will be person A and person B. (> **Slide 2**) Person A will be a time traveler (from c. 1700 AD) to whom their partner (person B) is meeting. Person B will then have 4 minutes with the following scene:
  1. The partner is about to receive a phone call on their cell phone and is trying to convince the time traveler that they should not be afraid of what will happen. (4 min)
  2. (> **Slide 3**) Now switch! Person B is now the time traveler and has broken their arm during the perilous time traveling journey, and person A is trying to convince person B to get an x-ray. (4 min)
- (> **Slide 4**) Give a few minutes for partners to discuss the exercise and jot down one or two approaches that things that they could do with their class to help prepare students to learn or facilitate students learning in their classrooms.
- *Ask for some volunteers for some of the ways that participants plan on drawing from this experience to practices in their classroom. Use this as a segue to talking about inclusive practices in the classroom and why they matter, building off of the skills and approaches they have already shared out (which are inclusive).*

Appendix B: Coding Instructions for Content Analysis

Carefully read each response. Look for words, phrases, or ideas that could reference inclusive teaching. Each statement should be coded for how well it references inclusive teaching along three dimensions: action, awareness, and rejection. Keep in mind that a statement may indicate, for instance, awareness without necessarily mentioning an action, or that an action may be indicated without explicitly mentioning topics associated with awareness.

Awareness: The awareness dimension is meant to capture references that highlight an *understanding* of diversity, identity, and their impact on learning. Each statement should be coded as falling into one of the following three categories:

1. Concrete awareness: To be coded as having concrete awareness, a statement must (1) mention distinct groups (around religion, sexuality, race/ethnicity, language background, learning disability, learning style, political preferences, introversion/extroversion, etc.), implicit bias, stereotypes, stereotype threat, etc.; or (2) acknowledge that different identities and backgrounds influence how students experience learning and the classroom (acknowledging different perspectives without mentioning identity or backgrounds does not meet this requirement). For instance, "Understanding how race, gender, and socioeconomic status influence learning," meets the first condition and would be coded as concrete awareness. Alternatively, "Encouraging students from different backgrounds to share their ideas," meets the second condition and would also be coded as concrete awareness. However, "Validating a range of perspectives," does not meet either requirement and would not be coded as concrete awareness.
2. Vague awareness: If a comment fails to meet the requirements for being coded as concrete awareness, it may instead be coded as vague awareness, provided that it meets the necessary conditions.

Comments that indicate vague awareness (1) fail to mention specific groups, different backgrounds, implicit bias, etc., but (2) emphasize the desire for inclusivity with the use of synonyms." For example, "I will make sure my classroom is welcome to all," fails to mention specific groups but uses the synonym "welcome," and therefore meets both conditions for vague awareness. Other common synonyms that could (but don't necessarily) indicate vague awareness include "welcoming," "accessible," "respectful," "includes all," "everyone", "all", "equal", "each", etc.

3. No awareness: If a comment fails to meet the conditions for either concrete or vague awareness, it should be coded as having no awareness.

Action: The action dimension is meant to capture references to inclusive teaching *strategies*. Each statement should be coded as falling into one of three action categories:

1. Concrete strategy: To be coded as mentioning a concrete strategy, the statement must (1) identify a specific classroom activity or action that could (2) plausibly be inclusive. For instance, "I will have divide students into small groups for class activities," would be coded as a concrete strategy because it meets both requirements. However, "I will vary classroom activities" would *not* be coded as a concrete strategy because it fails to meet the first requirement. Similarly, "I will use lecture as my primary classroom activity," would *not* be coded as a concrete strategy because it fails to meet the second requirement.
2. Vague strategy: If a comment fails to meet the requirements for being coded as a concrete strategy, it may instead be coded as a vague strategy, provided that (1) it mentions a teaching strategy in general terms without mentioning any specifics; (2) it could be plausible inclusive; and (3) it references a behavior rather than a cognition or attitude. For instance, "I will make sure my classroom is respectful of all views," would be coded as a vague strategy

because it mentions something the teacher will do (but not how), could be plausibly inclusive, and highlights a behavior (i.e. "make sure"). It meets all three conditions. However, "I will have a class discussion with my students about the need to respect a variety of viewpoints," fails to meet the first requirement and instead looks more like a concrete strategy. Similarly, "I will not interfere in student discussion," fails to meet the second condition. Finally, "I will respect students from all backgrounds," is closer to a cognitive rather than behavioral strategy and fails to meet the third condition. Here are additional verbs/actions that we consider behavioral rather than cognitive: make an effort, take into account/take care, be sensitive to, pay attention to, strive to, teach actively, and be aware of, to look after.

3. No strategy: If a comment fails to meet the requirements for either a concrete or vague strategy, it should be coded as having no strategy. This may occur if (1) no strategies are mentioned; or (2) the strategies that are mentioned could not be plausibly inclusive. Strategies that are a basic part of teaching responsibilities should not be regarded as plausibly inclusive. For example, a comment stating, "I will hold regular office hours," would be coded as having no strategy. However, "I will hold office hours to make sure that students who may come from disadvantaged backgrounds have the chance for additional help," would be coded as a concrete strategy. General statements defining teaching should be included in this category. For instance, the statement "Teaching that is accessible to all" or "teaching that is inclusive" should be coded as having no strategy.

Rejection: The rejection dimension is meant to capture references which suggest that the writer of the comment opposes the concepts or tenets of inclusive teaching. Each statement should be coded as falling into one of the three following categories:

1. Concrete rejection: To be coded as an explicit rejection, a statement must include language rejecting the idea of inclusive

teaching. It may or may not include references to teaching strategies or awareness. For example, "Seems like a buzzword" and "I will divide students into small groups for classroom activities, but I think there is too much concern about diversity" are both explicit rejections.

2. Vague rejection: If a statement does not explicitly reject the idea of inclusive teaching but appears insincere or snarky in its content, it should be coded as vague rejection. As with concrete rejection, it may or may not include references to teaching strategies or awareness. For example, "Play music in lab. Use urban examples" is a vague rejection because the statement appears to highlight stereotypical actions without highlighting the writer's earnestness to actually undertake actions that are inclusive. Statements that highlight confusion about inclusive teaching should also be coded as vague rejection.
3. No Rejection: If a comment does not include an explicit or vague rejection, it should be included as having no rejection.