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The professor of the future: Perspectives of university faculty implementing Universal Design for Learning

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Abstract

Data show that the university student population is increasingly more diverse than in the past. Certainly, the conventional college student profile has evolved with approximately three out of every four students now falling into groups previously deemed nontraditional, including adult learners and first-generation students and students who identify as disabled and/or neurodivergent. Emerging throughout this shift in the university student population is a need to address university faculty uncertainty around how to support diverse and/or disabled learners. Despite the barriers to learning faced during the COVID-19 pandemic, there also arose the recognition by some U.S. faculty and staff that expanded college access provided as necessity, such as the use of educational technology and hybrid learning, supported access for a new and expanded population of students. As a result, university faculty and staff are uniquely open to frameworks guiding implementation of inclusive practices and pedagogy, such as Universal Design for Learning (UDL). Findings from the study nuance the conversations on implementation of UDL at the postsecondary level; particularly, the findings show that while professional development and support can assist faculty in understanding and implementing UDL, there is still resistance to widespread

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implementation. This work provides a roadmap to other institutions who wish to implement UDL and explores specific barriers—and potential solutions—to the strategic implementation of UDL.

Keywords: faculty development, universal design for learning, inclusive practices and pedagogies

Data show that the university student population is increasingly more diverse than in the past. Certainly, the conventional college student profile has evolved with approximately three out of every four students now falling into groups previously deemed nontraditional, including adult learners and first-generation students (Riddell, 2017) and students who identify as disabled and/or neurodivergent (Kuder et al., 2021). The pivot to online and remote learning ushered in the necessary use of educational technology, which supported access for a more diverse population of students. As a result, university faculty and staff are uniquely open to frameworks guiding implementation of inclusive practices and pedagogy, such as Universal Design for Learning (UDL). The purpose of this study is to explore the perspectives of university faculty implementing UDL in their courses to meet the needs of the increasingly diverse student population. To explore this question, the research team designed a year-long mixed methods study that included interviews and surveys with a small group (n = 10) faculty in the humanities and social sciences fields. We will delve into the research design after an overview of the genesis of the UDL framework.

Universal Design for Learning

In the 1990s, Anne Meyer and David Rose introduced UDL, a framework that connects theory with practice to reduce barriers to learning. Through a UDL framework, learning environments are designed to anticipate students' diverse backgrounds (Meyer et al., 2014). Universal design is endorsed under the Higher Education Opportunity

Act (2008) to provide flexible learning, reduce barriers to instruction, and provide accommodations and support for a diverse student body. The National Education Technology Plan of 2016 further asserts the importance of higher education institutions adopting UDL as a framework to ensure accessibility to learning resources and experiences. Through implementation of the UDL framework faculty and staff can support students identifying as disabled and/or neurodivergent while also supporting students from other groups historically limited from higher education (e.g., see Fritzgerald, 2020). Homing in on disability, researchers report up to 96% of university classrooms now include disabled students (Los Santos et al., 2019).

Theoretical Framework

To frame the study, we draw on the idea of convergence research (National Science Foundation, 2019). Convergence research is identified by two principal characteristics: the study is driven by a focused and pressing problem, and the research is conducted by interdisciplinary research teams. To that end, this research addresses the compelling problem of the need for universities to offer more inclusive and innovative learning environments and is carried out by faculty from different disciplines across a university.

The university student population is increasingly more diverse than in the past. Approximately 75% of students now fall into one or more groups previously deemed nontraditional, including adult learners and first-generation students (Riddell, 2017) and students who identify as disabled and/or neurodivergent (Kuder et al., 2021). Unfortunately, the state of New Jersey ranks among the worst for inclusion and among the three states with the highest segregated school placements (National Council on Disability, 2018). As an innovative state institution committed to diversity, equity, and inclusion, there is now a need to build faculty capacity for relevant and inclusive pedagogies, especially given how remote practices have recast the approach to teaching and learning.

Concurrently, there is a need to address university faculty uncertainty around how to support diverse learners and implement relevant and inclusive practices such as UDL (Hromalik et al., 2019). The UDL framework suggests that students with an array of needs can be supported through broad practices that may not be attuned to the complexity and diversity of individual needs but rather the shifting needs of a more diverse student body (Kohler-Evans et al., 2019).

Propelling university access for students with invisible disabilities, the neurodiversity movement has redefined neurocognitive diversity such as autism, ADHD, and dyslexia through a strength-based lens (see Kapp, 2020; Walker, 2021), simultaneously establishing an urgency for university faculty and staff to be skilled in delivering inclusive pedagogy and practices (Kuder et al., 2021). The continuous increase of students identifying as disabled and/or neurodivergent attending college also aligns with a call for universities to expand their diversity, equity, and inclusion initiatives to include disability as diversity and to recognize disability culture in and out of the classroom (Dwyer et al., 2023).

Emerging throughout this shift in the university student population is a need to address university faculty uncertainty around how to support diverse and/or disabled learners (e.g., Dipeolu et al., 2015; Francis et al., 2019; Gokool-Baurhoo & Asghar, 2019). Despite the barriers to learning faced during the COVID-19 pandemic, some faculty and staff began to recognize that expanded college access provided as necessity, such as the use of educational technology and hybrid learning, supported access for a new and an expanded population of students (Kendall et al., 2020). As a result, university faculty and staff are uniquely open to frameworks guiding implementation of inclusive practices and pedagogy.

Recognizing the need for a framework to promote university inclusion for students identifying as disabled and/or neurodivergent as well as students with other nontraditional and intersectional diverse identities, in addition to faculty openness to universal frameworks, we developed a train-the-trainer model for faculty and staff professional development around UDL on our university campus. Given our

university commitment to diversity, equity, and inclusion, this study is timely and fills a need for faculty who wish to adopt a UDL framework in their teaching. Throughout this article we use the terms *disabled student* and *students identifying as disabled and/or neurodivergent* to show acceptance of the preference of many members of the disability community for identity-first language and to honor disability and neurodiversity as cultural identities.

Professional Learning Community

Some extant research (Tobin & Behling, 2018; Xie & Rice, 2021) explores the ways in which professional learning communities at the postsecondary level take up UDL. For example, Xie and Rice (2021) found that when university instructors explore UDL as a community through professional development workshops, instructors are more likely to make investments in their teaching practices that reflect UDL principles. Specifically, their research suggests that a learning community can help promote faculty investment in UDL principles.

Other research (Tobin & Behling, 2018) asserts the importance of a group of faculty committed to implementing UDL as a way to scale up institutional implementation. Almost 20 years ago, for example, the University of Massachusetts Boston partnered with a nearby community college with the aim of redesigning their courses with a UDL framework to support students, many of whom were considered nontraditional. While this work was initially grant supported, it was implemented by faculty members who were committed to creating accessible courses for students. Data collected by the community college showed a desire by faculty members to adopt UDL, and a UDL support position was created by the college. This position is held by a faculty member who is given course release to support ongoing UDL implementation efforts.

Similarly, our project implemented a UDL professional development learning community as a framework to minimize barriers in learning environments and to train faculty in designing university course curriculum. The learning community began with a core team of faculty

and staff spanning across a college of education, a college of humanities and social sciences, and the university library system. Extant literature discusses the four levels of UDL implementation in higher education (Moore et al., 2018); however, this project takes up implementation through a professional learning community that transcends a college of education, thereby contributing to and nuancing what we know about implementing UDL at the postsecondary level.

Methodology

While research demonstrates the impact of UDL on the outcomes of a diverse student population at the P–12 level, the postsecondary level lags in both implementation and research. The obstacle for the widespread adoption of UDL at the postsecondary level is providing faculty with the expertise they need to design syllabi, course activities, and assessments that align with the UDL framework. The present study fills this need through a professional development UDL train-the-trainers model to explore the following research question: *What are the perspectives/lessons learned of faculty who implement a UDL framework in their teaching practices?*

A sequential mixed methods approach of non-experimental survey and follow-up semi-structured interview was employed to elicit faculty/staff perspectives and around engaging in UDL professional development and implementation. Faculty researchers also analyzed anecdotal notes from meetings with trainers across the academic year. Through a mixed methods approach, data obtained from both surveys and interviews were analyzed for consistencies and/or contradictions within responses. There were 13 faculty trainers (n = 13) in the study; 10 of those faculty trainers consented to participate in the study of their experiences. Faculty participants' pseudonyms and content area are listed in Table 1.

A train-the-trainers model was selected to create a sustainable structure and to build a critical mass of faculty across the university

Table 1. Faculty Participants

Pseudonym	Content area
Lindsey	Political Science
Colleen	Political Science
Cassandra	English
Robert	English
Stacy	History
Sheldon	History
Jasmine	Anthropology
Michelle	Sociology
Melissa	World Religions
Anthony	Philosophy

to continue this UDL initiative beyond the present research study. Faculty became UDL "trainers" by engaging in three UDL professional development modules, redeveloping syllabi with a focus on UDL, and participating in one-on-one individualized professional development sessions during the fall semester. The three professional development modules included an introduction to UDL, syllabus development and flexible course policies, and flexible assignments and activities. During the spring semester, the trainers then shared what they had learned with peers in their departments.

Data Sources

The study collected data from a variety of sources across the entire academic year. Faculty perspectives and experiences were gathered through pre/post professional development surveys and individual interviews after the fall semester. The faculty survey consisted of a total of 52 questions, including 10 demographic items (position, years of teaching experience, college, department/division, class level, class size, age, gender, race, and number of students with disability). For the survey, we administered the Inclusive Teaching Strategies Inventory (ITSI) to all participants at the end of the fall semester. The ITSI is a

reliable and validated instrument measuring faculty knowledge, experience, and understanding of disability-related knowledge and laws, as well as inclusive instructional practices, accommodations, accessible course materials, course modifications, inclusive lecture strategies, inclusive classrooms, inclusive assessments, and disability laws and concepts (see Dallas et al., 2014; Lombardi & Murray, 2011; Lombardi, Murray, & Gerdes, 2011; Lombardi, Vukovic, & Sala-Bars, 2015). The ITSI scale was a Likert-scale, ranging from 1–6 (1 = s*trongly disagree*, 2 = *disagree*, 3 = *somewhat disagree*, 4 = *somewhat agree*, 5 = *agree*, and 6 = *strongly agree*). This range allowed for nuanced data with respect to faculty perspectives on UDL. The results of the ITSI were used to identify areas where additional training and support were needed and to guide interview planning.

Individual interviews of faculty (n = 10) were conducted at the end of the fall semester. Building on findings from the initial survey results and one-on-one meetings with faculty, the interview questions probed faculty reflections and perspectives implementing UDL principles and (1) course content, (2) instructional practices, (3) interactions with students, and (4) interactions among students. We also collected survey data from participants at the end of the spring semester to assess the efficacy of the project and to plan next steps in wider-scale UDL implementation at the university. The triangulation of ITSI, interview, and survey data shed light on how the implementation of a UDL framework at the postsecondary level affects faculty development and provided perspectives on how to meet the needs of a diverse student population.

Analysis & Results

Inclusive Teaching Strategies Inventory (ITSI)

We conducted descriptive statistical analysis to summarize faculty responses to the ITSI. The results are presented in Table 2. The findings indicate an increase in positive attitudes and actions toward diversity

Table 2. Findings From ITSI Survey

ITSI	Pre mean (*SD*)	Post mean (*SD*)
Attitudes subscale		
Accommodations	**4.92** (1.38)	4.79 (1.60)
Disability law and concepts	4.06 (0.86)	**4.52** (0.56)
Accessible course materials	**5.05** (0.91)	5.00 (0.73)
Inclusive assessment	**5.04** (0.91)	3.34 (0.86)
Actions subscale		
Inclusive classroom	**3.31** (0.26)	3.27 (0.27)
Inclusive lecture strategies	3.00 (0.42)	**3.15** (0.29)
Course modifications	**3.45** (0.58)	3.29 (0.48)

and inclusion following UDL professional development. These results suggest that the training program was effective in promoting a more inclusive campus environment, yet the results also indicate that even with faculty who express interest in implementing UDL, the process is not linear nor easy to achieve. For example, the survey asked faculty to respond to the prompt, "I believe I am confident in my understanding of universal design." In the pre-test survey, two-thirds of respondents either agreed or somewhat agreed with the statement. In the post-test survey, however, 100% of the respondents agreed that to some extent they felt confident in their understanding of universal design. This finding is not surprising, since the project focused on providing faculty with professional development on UDL; however, given the resistance to aspects of UDL shared in interviews and one-on-one meetings, particularly flexible deadlines, we were happy to see that faculty did at least report greater confidence in their initial understandings of UDL. We take this as a positive step for supporting more wide-scale implementation at our institution and use the ITSI data to inform our interview protocol.

In addition, on whether respondents allow for flexibility in submitting assignments electronically, in the post-test survey, all respondents indicated that they allow that flexibility for students. Similarly, all respondents in the post-test survey indicated that they provide "an outline/agenda of the topics to be covered" to students *most of the time* or *always*.

1. In both surveys, about 85% of respondents acknowledged that they sometimes use interactive technology to facilitate class communication and participation (e.g., discussion boards). Approximately 90% of respondents indicated that they present course information in multiple formats (e.g., lecture, text, graphics, audio, video, and hands-on exercises). In response to the question of creating multiple opportunities for engagement, about 90% of the faculty in both schools replied that they always create multiple means of engagement. This indicates that faculty are not recognizing the importance of incorporating technology. However, faculty are aware of the varied teaching methods that enhance student learning and engagement.

Interview Data

Along with the survey, we interviewed faculty at the end of the fall semester following the initial phase of their UDL training. Interview data reveal more of the anecdotal experience of faculty and help the researchers sketch trends in the data. All three researchers read the entire corpus of interview data independently. Interview data were then coded in two rounds. The researchers coded independently for the first round of analysis and used descriptive coding, considering our four a priori topics of content, instructional practices, instructor-student interactions, and student-student interactions. After the first round of independent coding, we came together and discussed the codes we developed from the interviews. From there we identified 15 codes that captured what we were seeing emerge in the interview data.

Therefore, in the second round of analysis, we engaged in focused coding.

We merged the 15 codes into three overarching themes: intention and transparency, humanizing practices, and reflection and growth. Interestingly, each overarching theme comprised affirming codes as well as codes of counterexamples, which suggests a continuum of expertise and buy-in from faculty participants. During the second phase of coding, we realized that some of the codes fell into more

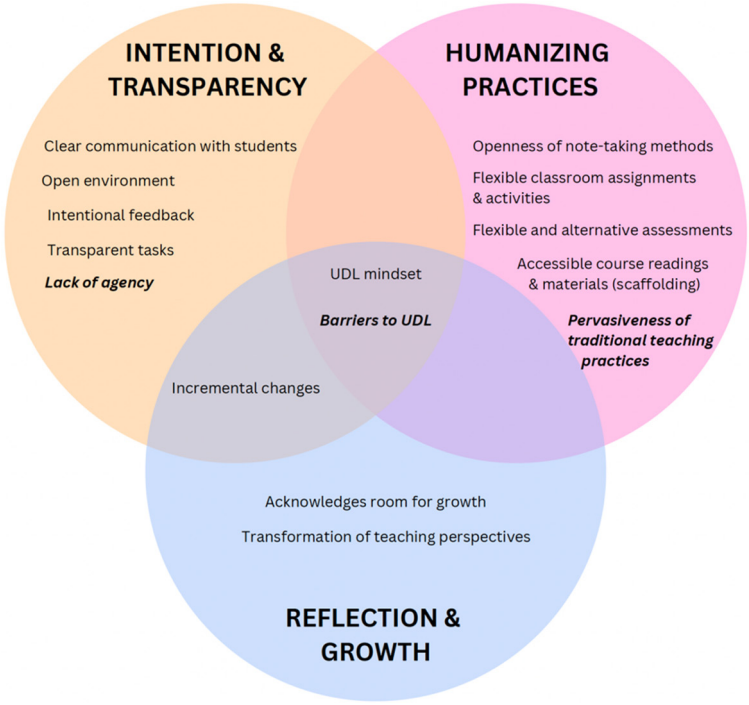

Figure 1. Overlap of Themes

than one theme, thus we developed overlapping circles (see Figure 1) that represent the convergence of themes and codes. Each of these themes, along with examples and counterexamples from the data, is described next.

Intention and Transparency

We categorized five codes into the theme of intention and transparency: open environment, intentional feedback, clear communication with students, transparent tasks, and a counterexample of lack of individual agency. The theme of intention and transparency is illustrated in the following qualitative data from interviews.

Cassandra, a professor of English, expressed building a relationship of transparency with her students that also included meeting students where they are. For example,

> I'm also, for not so great reasons, pretty attuned to watching students and looking for responses and reactions and stuff like that. And I can kind of tell when, you know, they're probably haven't read or they're having a bad day. I don't press on those things, though. I don't call them out. I don't humiliate them. I don't. I just sometimes I'll ask, I'm like, who did the reading for today? And if the numbers are low enough, I said, do we need a reading day? For the most part, I just try to make space for where students are at.

Colleen, a political science professor, also spoke about being intentional with feedback and supporting students to revise and resubmit their work:

> So I use Google documents for their assignments. And so if a student, you know, incorrectly interprets like a regression table, for example, I will put the correct response in their comment and I'll say, look, this is like how I want you to do this for these particular things. And then they'll have an opportunity to revise and resubmit and it's not extra work for them, it's built into the syllabus. So they're never giving me something only once.

Michelle, a sociology professor, described her use of technology tools to maintain clear and proactive student communication. In a discussion about communicating expectations to students, she shared:

> So it's always been a part of the way I teach. Communicating from the very beginning. We go over the syllabus in the very beginning. I love the idea of the live syllabus because there again, as things happen and you move through the semester, things might change. If I need to spend more time on a topic, so with a live syllabus, I like the idea of

> communicating right away if something needs to change if we're going. So I'm always communicating week to week what the expectations are for each week that we go. And it's usually, and it's based on the syllabus.

Despite these affirming data, the lack of agency for implementing UDL also emerged through faculty-shared perspectives. For example, Stacy, a history professor, noted the discipline of history as being reading dependent as a reason not to disrupt traditional practices with UDL:

> I'm in the history department; historians like reading. A major part of the disciplinary practice of history is reading documents, reading secondary source materials and analyzing them. And so it's not something that I, in part because it's a textbook, it doesn't have accompanying videos or, you know, a podcast or an audio book or whatever. So partially it's the fact that I had chosen this textbook a long time ago, but partially it's also that the disciplinary convention is so focused around reading, it's very difficult to figure out how to do some alternative things.

Likewise, Anthony, a philosophy professor, shared:

> I mean, this is not a course where it would be easy to do a lot of expressive kinds of creative things for students. So it's focused on achieving a certain kind of result. I do think there could be some things like having students write up a list of sort of hints as to how you do a certain kind of proof, things like that. I've had students do those things in the past. They're always problematic though, because it's not as simple as those things would represent it to be. And so it may end up requiring a lot of discussion and explanation and everything else. And so I have not found anything like that that works particularly well.

Collectively, these data suggest that this project supported faculty efforts toward intentional teaching and transparency with students, which aligns with UDL. Interestingly, we did identify counterexamples

in the data that suggest some faculty maintain a lack of individual agency when it comes to UDL implementation.

Humanizing Practices

For the theme of humanizing practices, we identified five codes: flexible classroom activities and assignments, flexible grading and alternative assessments, accessible course readings and materials, openness to divergent note-taking methods, and the counterexample of the pervasiveness of traditional instructional practices. Examples of these data are discussed below. Cassandra shared:

> Again, my effort is to humanize the classroom and what are our human needs. I don't make any assumptions about maybe you just need to quiet. Maybe you've had a bad day. I don't know what's been going on. So I don't make any assumptions. And actually, sometimes I'll just ask them, do we wanna work in groups today or do we wanna keep it a whole classroom experience? And they'll let me know. And I'm fine with that.

When asked about instructional practices, Sheldon, a professor of history, shared his efforts to increase both flexibility and accessibility for his students in relation to flexible grading of assessments:

> One of the things I've tried to do is construct a wide range of assessments that would allow kind of flexibility, allow students to approach things in a lot of different ways. I mean, they're very sort of open-ended assessments. Although there are deadlines for the assignments, it's also been one of those things that they're quite loose deadlines. So it's been my hope that, and they have flexibility in terms of the number of assignments that they need to submit.

Cassandra shared her experiences with flexible assignment grading as well:

> A couple of semesters ago, I did some research into UDL. And so in assessment, one of the things that I look for is improvement rather than perfection. I look at holistically what their assignments and the general trends in their performance has been. And that's what I use to base their entire grade. I don't make one assignment worth 70% of their grade ever. All the grades are equally including participation. Everything is now equal. So there's no, you really have to try hard to fail my class.

Similarly, Stacy shared her experiences with flexible grading:

> I'm also using specifications grading so students can pick and choose based on which grade they want to earn in the class, which assignments they want to complete, which I'm hoping makes the assignment process a little bit more transparent and relevant to them. I will give them fairly extensive feedback and allow them to redo the assignment as many times as it takes for them to meet the specification on it and then get the credit for the assignment.

Faculty stressed the importance of providing accessible course materials, with some instructors noting increasing their skill set in developing accessible course materials as a goal. For example, Jasmine, an anthropology professor, shared:

> I've been doing this, but they do get a combination of readings. I feel like it's especially my field, it's very jargoned . . . in upper level courses . . . I will add a few of the jargon material, but students have an assignment of circling all the words that they feel are jargon they have never heard of, and we go over them. In the intro courses, I try to find readings that do not have the jargoned terminology that would make it very inaccessible to anybody, to you, to anybody outside the field . . . and I also have assigned podcasts for a number of years and also films.

In addition, Lindsey, a professor of political science, stated:

> So this semester I had a student who was a really good note-taker . . . and he gave me his notes. So I liked that and I put them up and shared them after class was over as kind of a reinforcement and students can go back and they can use them now.

Related to that point, Sheldon shared:

> So I'm actually very happy for students to take notes in whatever way that they want. I would say that some of the things that I've actually played with but have been reminded of . . . closed captioning in lectures or films that I use in class, recording lectures, making those available via Canvas. But, you know, I pretty much let my students know, you know . . . whatever they need to do to capture the information in the way that's best for them, you know, I try to accommodate that.

Despite all 10 faculty participants expressing a positive adoption of UDL principles in their university courses, when asked to provide course examples, many participants shared traditional college classroom routines related to discussions, independent readings, and quizzes. For example, in a discussion related to course content, Colleen shared:

> And for that class, um, they do like basic sort of textbook readings and then they have a few reading quizzes. But the reading is relatively light and . . . and students 100% do not do the readings when there's no quizzes. So we give the quizzes for when we want them to really do the reading.

Similarly, Stacy shared:

> I do use a lot of small group work in class. Usually it's not great, it's just like let's get into a pair or into a small group and discuss these things and then we'll share it and report back and like that's it.

Like the previous theme of intention and transparency, the faculty demonstrated humanizing practices related to UDL implementation, yet counterexamples were identified in the interview data.

Reflection and Growth

For the theme of reflection and growth, we also identified five codes: acknowledges room for growth, a UDL mindset, incremental changes, transformation of teaching practices, and the counterexample of barriers to UDL implementation, which we illustrate below with examples from the interview data. When asked to share thoughts about UDL, Robert, a professor of English, acknowledged room for growth:

> I guess I just want to say that it's like when I started the UDL journey, I maybe was sort of resistant a little bit. And the more I thought about it, the more I just thought of that. No, why not? This is just another way to grow as a teacher and to do things that I've been doing all along. I like how UDL says to give different students different avenues to get higher grades, you know? And if they're willing to pursue those different avenues, then why shouldn't students all be able to earn higher grades?

Similarly, Sheldon acknowledged room for growth in designing classroom activities:

> You know, there are occasions where we have an in class activity like a, you know, a discussion or there might be an in class activity, you know, for example, a map quiz, or something. And, you know, I'm very happy to offer alternate kinds of ways of completing that but that may be one area where, you know, I still need to be more mindful and to build that.

Stacy also shared the perspective that there will always be room for growth:

> I think it's really important work, and it's very satisfying to, you know, to do this work, but on the other hand, it is a lot of work. And then sitting here with your questions, I'm thinking . . . there's so many things that I could have done and I haven't, and I've like already been working so hard on this. You know, the class is never going to be perfect. I realized that, but there's a lot more to do. So it can feel overwhelming.

Several faculty members noted that having an open mind toward removing barriers to instruction is a prerequisite to implementing UDL. Melissa, a world religions professor, acknowledged frustration with her colleagues who did not share a UDL mindset:

> I'm frustrated with the professors. I'm frustrated with people who, you know, even some of the trainers who are, you know . . . I just want to shake them and go, here's how you, just listen. But whatever, that's just people not having the same mindset. We can learn from that.

Similarly, Michelle expressed a desire for her colleagues to share her own UDL mindset:

> I'm a little concerned about, you know, other professors and their methods of teaching. But I think if I take it just as this is my experience and what works for me in my classroom, I'm hoping that others will see that maybe just a part of their classroom can be benefited by these principles.

And Cassandra shared the planning of such an incremental change in the area of assessment:

> I think I'm gonna do a midterm check-in. And so they have to have a certain number of assignments turned in by then, but when they turn them in is up to them . . . at midterm, I'll do a big grade through. And then we'll touch base and see what you need to work on for the second half of the semester.

The transformation of teaching practices as a result of UDL emerged throughout the faculty's shared experiences of participating in the professional learning community who implemented UDL in the college of humanities and social sciences. For example, Cassandra shared experiences in relation to student assessment that reflected her desire to lean in to change:

> I think if you really lean into systemic change, you have to think about the way the system exists in this space that you're in. And to me, the movement forward means thinking about how they can get at those skills with different assignments instead of it being the assignment that I choose. . . . I wanna think of a system that I think works for me that offers actually even more choice and direction.

Interestingly, faculty participants were not specifically asked to share barriers to UDL implementation, yet the faculty wanted to share and consider the identification of these barriers. For example, Melissa shared:

> I think, the biggest barrier to implementing UDL for me personally, institutionally, is that what I'm trying, and I understand this when other professors say this, that they're worried, you know, if students have five courses and one of them goes easy on them with, you know, getting rid of the rigid deadlines to implementing, you know, UDL style flexibility, that that will be the class that gets thrown away. I don't think they're wrong.

Sheldon shared that another barrier to UDL implementation is the resistance of faculty colleagues:

> I feel like I still have a lot to learn about UDL, but also to help other people. I think in kind of informal discussions . . . I tend to think, where is the resistance? I think probably the most common thing that I've heard in discussing things informally with other people is questions

> like lowering standards. And do we have to change deadlines? I think in terms of implementing UDL . . . it's going to be kind of finding ways to counter some of those kinds of objections. I look around my department . . . I can see where there's going to be some sort of resistance to some of this. And that strikes me as kind of a big challenge for all of us.

Taken together, the interview data show that while faculty understandings of universal design have increased, their belief that its utility and feasibility are related to increases in student learning still lies in the balance. Some possible influences on the findings are the grassroots efforts of this initiative. Rather than top-down from administration, it was a faculty-driven endeavor based on our work in the field of inclusive education and practices as well as intimate knowledge of our student population and their current needs post-pandemic.

Discussion

Overall, the results showed that the training had a positive impact on faculty members' attitudes and actions toward the implementation of UDL. These findings suggest that further training and support could lead to even greater improvements in faculty members' teaching practices. The significance of this project is how it supports the students enrolled in programs at our university by increasing their access to course content and honoring the diverse needs of today's students. Perhaps the most significant takeaway from this study is the need to actively dismantle the myth that UDL will lower academic standards; in fact, UDL is a way to differentiate instruction and make content accessible and meaningful for the increasingly diverse college student population. Dismantling the myth of UDL as lowering academic standards requires in-group buy-in, supported through scale *up* and scale *out* efforts such as the train-the-trainers approach used in the study. Furthermore, this project built on faculty expertise by systematically building inclusive learning environments and experiences at the

postsecondary level. This model for widespread implementation of UDL can be built upon by other postsecondary institutions.

This project, and the data it generated, contributes to the emerging landscape of UDL implementation at the postsecondary level. The themes converge around barriers to UDL implementation, which is something that other faculty could take up directly in implementation efforts by intentionally addressing barriers—both perceived and real—to widespread UDL implementation related to arts and sciences content. This research adds to the literature as it details implementation efforts beyond a college of education and into arts and sciences disciplines. With a nod to extant literature (e.g., Moore et al., 2018), we scaled out our efforts as a way to scale up UDL implementation at our institution. Specifically, we built a collaborative effort between college of education faculty and arts and sciences faculty. So, rather than focusing on simply scaling up UDL implementation through a college of education, this research focuses on scaling out UDL implementation throughout different professional learning communities at an institution of higher education.

This project continues to have a meaningful impact on the university through building faculty capacity to teach with relevant and inclusive pedagogies that support diverse learners. In Fall 2022, the project primarily impacted the 15 trainers and their students, as they began to incorporate UDL into their classrooms; by the end of Spring 2023, over 200 full-time and adjunct faculty had participated in some sort of UDL training or workshop led by the faculty trainers from their own department, extending the reach of this initiative to many more faculty and their thousands of students. Although the data identified some resistance and barriers, many faculty expressed excitement and enthusiasm about the impact of the program and shared their commitment to sharing what they had learned about UDL with their departments. Despite concerns that some colleagues would not accept certain aspects of UDL, trainers almost uniformly felt that UDL had benefited their own pedagogy and that many other faculty would incorporate UDL into their teaching, ultimately making diversity, inclusion, and access central to their approaches.

The study also addresses the gap in the literature on UDL implementation at the postsecondary level writ large. While the influence of UDL training was not as significant for the faculty as we had hoped, the data revealed incremental change in a positive direction is possible for UDL implementation at the postsecondary level. There is a dearth of literature on this topic, particularly in arts and sciences colleges, but we hope that this study can help foster important and timely conversations about how to support diverse student populations across higher education contexts.

Biographies

Brianne Morettini, PhD, is a Professor of Inclusive Education and Co-Chair of the Department of Wellness and Inclusive Services in Education (WISE) at Rowan University. She is also co-Principal Investigator of the Learning Resource Center. Her research reflects a commitment to understanding teachers' perceptions and needs to develop educational settings that embrace diverse children and communities. Dr. Morettini's scholarly commitments deepen conversations on teacher education and development, beginning teacher perspectives, and self-study inquiry. Her work appears in national and international publications, conferences, book chapters, invited talks, and op-eds.

Amy Accardo, EdD, is an Associate Professor and Co-Chair of the Department of Wellness and Inclusive Services in Education (WISE) at Rowan University. She is the founding director of the Center for Neurodiversity and is co-Principal Investigator of the Learning Resource Center, both housed at Rowan University. Dr. Accardo's scholarly activities focus on promoting equitable education opportunities for autistic young adults and working with neurodiverse students and faculty and staff to implement inclusive pedagogy and practices on campus.

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Conflict of Interest Statement

The authors have no conflict of interest.

Data Availability

The data reported in this manuscript are available on request by contacting the corresponding author.

References

Dallas, B. K., Upton, T. D., & Sprong, M. E. (2014). Post-secondary faculty attitudes toward inclusive teaching strategies. *Journal of Rehabilitation*, *80*(2), 12–20.

Dipeolu, A. O., Storlie, C., & Johnson, C. (2015). College students with high-functioning autism spectrum disorder: Best practices for successful

transition to the world of work. *Journal of College Counseling*, *18*(2), 175–190. https://doi.org/10.1002/jocc.12013

Dwyer, P., Mineo, E., Mifsud, K., Lindholm, C., Gurba, A., & Waisman, T. C. (2023). Building neurodiversity-inclusive postsecondary campuses: Recommendations for leaders in higher education. *Autism in Adulthood*, *5*(1), 1–14. https://doi.org/10.1089/aut.2021.0042

Francis, G. L., Duke, J. M., Fujita, M., & Sutton, J. C. (2019). "It's a constant fight": Experiences of college students with disabilities. *Journal of Postsecondary Education and Disability*, *32*(3), 247–262.

Fritzgerald, A. (2020). *Antiracism and universal design for learning: Building expressways to success*. CAST Professional Publishing.

Gokool-Baurhoo, N., & Asghar, A. (2019). "I can't tell you what the learning difficulty is": Barriers experienced by college science instructors in teaching and supporting students 1 with learning disabilities. *Teaching and Teacher Education*, *79*, 17–27. https://doi.org/10.1016/j.tate.2018.11.016

Higher Education Opportunity Act. (2008). Pub. L. No. 110–315.

Hromalik, C. D., Myhill, W. N., & Carr, N. R. (2019). "ALL faculty should take this": A Universal Design for Learning training for community college faculty. *TechTrends*, *64*(2), 91–104. https://doi.org/10.1007/s11528-019-00439-6

Kapp, S. K. (Ed.). (2020). *Autistic community and the neurodiversity movement: Stories from the frontline*. Springer Nature. https://doi.org/10.1007/978-981-13-8437-0

Kendall, E., Ehrlich, C., Chapman, K., Shirota, C., Allen, G., Gall, A., Kek-Pamenter, J.-A., Cocks, K., & Palipana, D. (2020). Immediate and long-term implications of the COVID-19 pandemic for people with disabilities. *American Journal of Public Health*, *110*(12), 1774–1779. https://doi.org/10.2105/AJPH.2020.305890

Kohler-Evans, P., Rutledge, C. D., & Barnes, C. D. (2019). Universal Design for Learning in the university classroom. *International Research in Higher Education*, *4*(1), 38–44. https://doi.org/10.5430/irhe.v4n1p38

Kuder, S. J., Accardo, A., & Woodruff, J. (2021). *College success for students on the autism spectrum: A neurodiversity perspective*. Stylus Publishing.

Lombardi, A. R., & Murray, C. (2011). Measuring university faculty attitudes toward disability: Willingness to accommodate and adopt Universal Design principles. *Journal of Vocational Rehabilitation*, *34*(1), 43–56.

Lombardi, A. R., Murray, C., & Gerdes, H. (2011). College faculty and inclusive instruction: Self-reported attitudes and actions pertaining to Universal Design. *Journal of Diversity in Higher Education*, *4*(4), 250–261. https://doi.org/10.1037/a0024961

Lombardi, A., Vukovic, B., & Sala-Bars, I. (2015). International comparisons of inclusive instruction among college faculty in Spain, Canada, and the

United States. *Journal of Postsecondary Education and Disability*, *28*(4), 447–460.

Los Santos, S. B. D., Kupczynski, L., & Mundy, M.-A. (2019). Determining academic success in students with disabilities in higher education. *International Journal of Higher Education*, *8*(2), 16–38. https://doi.org/10.5430/ijhe.v8n2p16

Meyer, A., Rose, D. H., & Gordon, D. (2014). *Universal design for learning: Theory and Practice*. CAST Professional Publishing.

Moore, E. J., Smith, F. G., Hollingshead, A., & Wojcik, B. (2018). Voices from the field: Implementing and scaling-up Universal Design for Learning in teacher preparation programs. *Journal of Special Education Technology*, *33*(1), 40–53. https://doi.org/10.1177/0162643417732293

National Council on Disability. (2018). *IDEA Series: The segregation of students with disabilities*.

National Science Foundation. (2019). *Convergence research at NSF*. https://www.nsf.gov/od/oia/convergence/

Riddell, R. (2017, July 11). Data shows decade's dramatic shift in profile of "typical" college student. *Higher Ed Dive*. https://www.educationdive.com/news/data-shows-decades-dramatic-shift-in-profile-of-typical-college-student/446723/

Tobin, T. J., & Behling, K. T. (2018). *Reach everyone, teach everyone: Universal Design for Learning in higher education*. West Virginia University Press.

Walker, N. (2021). *Neuroqueer heresies: Notes on the neurodiversity paradigm, autistic empowerment, and postnormal possibilities*. Autonomous Press. https://neuroqueer.com/neuroqueerheresies/

Xie, J., & Rice, M. F. (2021). Professional and social investment in universal design for learning in higher education: Insights from a faculty development programme. *Journal of Further and Higher Education*, *45*(7), 886–900. https://doi.org/10.1080/0309877X.2020.1827372