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Editorial

Introduction to Special Issue on Universal Design for Inclusive Pedagogy and a Future Research Agenda

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Abstract: This Special Issue seeks to address the needs of all postsecondary/tertiary students for a barrier-free learning environment to increase their academic achievement, engagement, learning mastery, and persistence to graduation. Universal Design for Inclusive Pedagogy (UDIP) is sensitive to diverse students and individual differences to promote access and equity. While our colleagues in elementary and secondary education have been addressing this issue for many years, postsecondary education is a newer field for this approach. The six articles in this issue break new ground with regards to expanding the boundaries of Universal Design (UD). Areas explored in this Special Issue are transformed curriculum, innovative teaching and learning practices, cross-national and cross-cultural student interactions, application of UD to academic pathways, and UDIP embedded into the institutional culture and policies. The central themes of the articles are increased access, equity, and social justice for all students.

Keywords: universal design; inclusive pedagogy; postsecondary and tertiary access; universal design for learning; universal instructional design; widening access

1. Introduction

This Special Issue contributed to identifying needs and providing solutions for overcoming barriers to the learning environment for postsecondary/tertiary students. These articles demonstrated through changed administrative procedures, curriculum, and new approaches that students can increase their academic achievement, engagement, learning mastery, and persistence to graduation through Universal Design for Inclusive Pedagogy (UDIP). UDIP is sensitive to diverse students and individual differences to promote access, equity, and social justice. The authors have provided new and creative ideas for classroom faculty members, student service unit staff, and institutional administrators. While our colleagues in elementary and secondary education have been addressing this issue for many years, postsecondary/tertiary education is a newer field for this approach. As the field has increased in sophistication and nuance, different terms have been introduced. Each often has different approaches, theoretical underpinnings, and specific applications. Some of these include Universal Design (UD) [1], Universal Instructional Design (UID) [2], and Universal Design for Learning (UDL) [3]. Among the articles within this Special Issue, different authors referred to these terms and introduced others. For purposes of this brief introduction, Universal Design (UD) will be the generic term used when referring to these nuanced approaches.

2. Current Volume

Many previous publications on UD, UID, UDL, and other similar approaches have often focused on changing the delivery process of learning at the classroom level [4]. Change occurs at the individual faculty member level as they voluntarily modify their teaching processes. Many of these changes

were based on extending UD principles designed for students with disabilities and embedding them within the class environment for reducing barriers for all students. Articles within this Special Issue extend the traditional approach of these approaches by moving beyond process change within the classroom by implementing a transformed curriculum, new student service/student development approaches, and new administrative policies that expand access for students at the institutional and system level. The authors of this Special Issue challenge the notion that change is dependent upon voluntary action by individual faculty members or student development or service staff members and instead change is required that transforms the learning climate for all students throughout the institution and beyond. Bottom-up change is reflected in changes by the individual faculty and staff members. Top-down change is reflected by administrative changes made by senior administrators and policy-making bodies. These authors provide practical examples of change that begin at the bottom and top of the institution with an eventual transformation of the institutional culture that results in equity and social justice for all.

Ignatian Pedagogy as a Form of UD [5]. Too often, when authors write about UD, it is an unwritten assumption that this is a relatively recent pedagogy. If anything has been learned about education research it is that it is an incremental advancement of previous scholarship. Connecting UD with the Ignatian Pedagogy (IP), which reaches back 500 years, places this "new" UD pedagogy in a larger historical context. Pousson and Myers acknowledge the nuanced differences of the pedagogies but are convincing that the essential elements of UD are already embedded within the IP pedagogical approach. For that reason alone, this is an essential inclusion in the Special Issue. It will challenge readers to reexamine their own understanding of UD and encourage them to make connections with previous and current approaches to pedagogy. This article opens the door to more nuanced scholarship. Another reason for inclusion is the context of Roman Catholic Jesuit institutions. No doubt there are journals devoted to the examination of IP, but few if any articles appear in the general education journals. This article opens-up new areas of inquiry by readers that they may have been previously unaware of.

Expanding UD: Implications for Gender Identity and Sexual Orientation [6]. UD was originally developed to overcome barriers to students with disabilities, both seen and unseen. Couillard and Higbee extend UD for students who have been marginalized due to their gender identity and sexual orientation. Classes which are truly inclusive must be welcoming for all students regarding differing identities. Identity barriers can be just as severe as those with students that have often been served through UD. Both the curriculum and the learning process must take the next step in the transformation to eliminate barriers. Couillard and Higbee explore new territory by linking UD with recognizing social identities as potentially another hidden barrier. While the focus of their article is about gender identity and sexual orientation, the same principles could be extended to other identities which have been marginalized in the classroom and elsewhere within the institutional climate. The authors provide numerous actions that could be taken by faculty members, academic advisors, career services counselors, academic support staff, health and wellness service staff, and more. The article includes an especially engaging set of scenarios for application of the proposed changes in curricula and policies. These would be especially useful for discussion by employees as part of a professional development program on this topic. Higbee and Goff [7] have previously edited and contributed to a comprehensive volume regarding this same topic in this journal Special Issue with some of the authors of these articles.

Bridging Countries and Cultures [8]. This article challenges the traditional interpretation of UD. Duranczyk and Pishcherskaia break new ground by stating that multicultural approaches to learning are insufficient. Rather than simply pursuing more traditional approaches, they advance the concept that education is insufficient unless it is a learning community of students from different nations simultaneously studying the same topic in a carefully nuanced fashion. Learning cannot be "inclusive" if it does not include students from different cultures and nations within the same course. Students must increase not only their cultural competence but also their language competence. Their case study involves students in China, the Russian Republic, and the U.S. This certainly is a progressive idea

not yet embraced by mainstream educators. One of the purposes of this special issue is to push the boundaries of UD. Access to no-cost and low-cost technology permits easy communication among students separated by time and distance.

Extending UD for Learning through Concurrent Enrollment [9]. Concurrent Enrollment (CE) refers to students enrolled in classes that provide both high school and college credit simultaneously through a carefully constructed curriculum that accomplishes goals for both levels of education. Many publications explain how UD can be applied to a particular classroom but little attention has been made to apply the lens of UD to the actual pathway of students through the education pipeline. While the use of CE is prevalent in U.S. secondary schools, Staats and Laster reframed it as an inclusive pathway from secondary to postsecondary/tertiary institutions. Most publications about UD are concerned with modifications to a single classroom learning environment. The authors identify that while CE is prevalent in North American education, participation is limited to a small population of students deemed the most academically prepared. This article expands the scope of UD as an essential pathway for increased access, equity, and social justice for students entering college. Rather than an opportunity for some students, CE is redefined as an essential pathway for students. Failure to provide CE marginalizes nonparticipating students with future opportunities for successful entrance into college. Recognition of this role requires decisions by administrators and governing boards of multiple secondary and postsecondary institutions to devote personnel, resources, and administrative policies to foster and increase this opportunity for all students. This requires system-level UD commitment rather than voluntary action by a few faculty members. This article describes the equity-focused CE program at the authors' institution and includes a qualitative study of the outcomes for the participating faculty members that identified themes related to the mathematics modeling pedagogy and themes of the structure of the CE program itself. The authors leave the reader with the challenge of supporting the status quo of limited CE availability to the privileged or to expand the program to be inclusive of all students traveling the challenging and difficult pathway to college.

Intercultural Pedagogy: A Faculty Learning Cohort [10]. Lee, Poch, Smith, Kelly, and Leopold advocate that the foundations for 21st-century education are cross-national and cross-cultural student interactions in undergraduate courses. While the professional literature is replete with faculty learning communities and teaching circles, the faculty cohorts described in this article required intentionally diverse cohorts subject area expertise, teaching expertise, and skill with intercultural pedagogy. Creating an inclusive classroom for increasing numbers of recent immigrants and international students required significant faculty development toward the facilitation of intercultural interactions within their classes. Serving all students in the class requires well-designed, relevant, and facilitated discussions. Developing a shared vision for the creation of this inclusive environment is a challenge for some faculty members who have enjoyed personal autonomy within their courses. The authors report on several faculty cohorts and the lessons learned from those experiences.

Integrating UD, Culturally Sustaining Practices, and Constructivism [11]. Grier-Reed and Williams-Wengerd describe how their model of integrating UD, culturally sustaining pedagogy, and utilizing a constructivist approach increases learning for postsecondary students. Their model provides practical strategies to confront the barriers of ableism, race, ethnicity, language, gender, and sexual orientation. These barriers result in institutionalized oppression that replicates itself within the campus fabric. The campus climate and system must be redesigned and reimagined. In this article, a constructivist approach examines the inequity and injustice within undergraduate classrooms. The activities described in this article required careful coordination and implementation to combat this toxic environment. Some of these included the Diversity Lab, fishbowl discussions, cultural interviews, and assessments of the process and content of the dialogue among teachers and students. While some previous publications have discussed some of these aforementioned activities, the authors of this article present a comprehensive and nuanced approach that integrate them seamlessly. The authors carefully link theory with choice of the individual course activities and measures. As the authors

indicated at the beginning of this article, constructing such a nuanced approach to learning requires a complete redesign of the course from the bottom-up.

3. Future Research Agenda

The authors of this Special Issue move the field further but much more is needed to extend their work and by other colleagues in this growing field of UDIP transformation. It is healthy to see the proliferation of evidence-based practices for the classroom and student service units at the institution. However, the need is so great that change cannot occur in one classroom or student service unit at a time. In addition to scaling up this bottom-up process of change, the institutional climate must change and help initiate change from the top-down. Unfortunately, there are few examples of such successful practices in the professional literature. More work is needed to provide effective practices at the macro level so others can adapt and adopt them for use at their institutions.

A classic model for organizational and personal change is provided by Kurt Lewin [12]. Professor Kurt Lewin (1890–1947) was one of the early leaders in social psychology and focused his research heavily on organizational dynamics. Lewin's Force Field Analysis (1947) provided a model for understanding the forces that either foster or hinder change. He described a multi-stage process. The first stage involved early leaders dissatisfied with the status quo because of evidence of poor outcomes. The professional literature is already at this stage with varying levels of awareness of the problems and data studies on the impact of students with different levels of abilities, students of multiple and intersecting identities, and students historically excluded from successful experiences in education.

The second stage of this change model occurs when some people "unfreeze" their customary behaviors and implement new ones that either they create or have learned about. These early innovators collect data, formulate models, continue innovation, and share their results within the wider community. The professional literature has numerous examples but needs many more voices and applications of UDIP.

The third stage of the change model involved the senior leadership of the organization that provides a process for people to begin to "freeze" their new behaviors. While the early adopters have implemented the new models, incentives and processes are needed for widespread implementation. There are few reports of senior academic and student affairs leaders creating and leading an institution-wide embedding of UDIP into the fabric of the institution. Deep change cannot depend upon the good will of already overworked and overcommitted instructors and student service staff members. Models of training and mentoring programs are needed for educators to implement UDIP within their domains. The senior leadership must make UDIP part of their regular communication and reflect it in their actions beyond simply listing it among institutional values buried in documents seldom read by anyone. A sustained effort by everyone over years will be required to change the institutional climate to embrace this new approach and value system. This change must withstand the revolving door of senior and intermediate-level administrators.

The final stage of Lewin's model is that the organization must complete the "freezing" process. Tangible rewards by the institution through increased pay for implementing the new behaviors communicates the actual importance of these behaviors. This could occur through embedding UDIP into the annual review process for salary increases. The institution could regularly provide supplemental pay for educators to attend professional development workshops during times when they are not on contract. What are examples of units large or small that have provided incentives for the adoption of UDIP in their domains of influence? The freezing process for embracement of UDIP must be strong enough to withstand the ever-changing senior and intermediate-level leaders, classroom instructors, and student service unit staff. Otherwise, it will soon be replaced by the next priority of the new leaders and teachers. What are examples of this deep institutional commitment to UDIP as part of its core values and behaviors?

So far these recommendations have focused on the classroom or student service unit and the upper-level of the institution. However, what about in-between these two levels? How has UDIP been reflected with the development of pathways for students between the classrooms and school settings? Has the institution reviewed the potential barriers to student movement between institutions and through degree programs? One article in this volume investigated the essential role of high school–college bridges. While much literature exists about such programs, has it been examined through the lens of UDIP? While much literature is being produced concerning UD at the classroom level, how has the UD lens been focused on undergraduate and graduate degree programs and the invisible barriers that may populate them?

While the professional literature includes evidence-based practices and policies from different countries, more reports are needed to investigate the influence of different cultural contexts, histories, and values for UDIP. Multinational studies would be instructive for illustrating different approaches. Issues of widening access, equity, and social justice may reveal new international perspectives for overcoming historic barriers and victimization through imperialism and occupation by other countries. Education must be reclaimed as a means of liberation for the individual and not for domination by others [13].

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Communication

Bridging Countries and Cultures through Accessible Global Collaborations

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Abstract: This paper discusses and provides two case studies on a postsecondary, accessible, global project among students in Russia, China, and the United States. The project design was to engage diverse students in an international conversation to explore their place in the world and envision their future as individuals, innovators, workers, and/or leaders in this globalized world. The three countries chosen, Russia, China, and the United States, are world powers and are pivotal countries for building international bridges. This paper highlights the evolution of the project and students' vision for developing ongoing student-centered international research projects. It is the hope of the authors that educators reading this article will be inspired to embark on other accessible global projects designed to enhance language and cultural competence with and among all college students.

Keywords: accessibility; global education; international programs; universal design; pedagogical practices; inclusivity; China; Russia; USA

1. Introduction

The advantages for pursuing a global approach in undergraduate education are extensive. Globalization creates opportunities for sharing knowledge, technology, and social values as well as intercultural knowledge and competence. Globalization or internationalization is an integral component of higher education systems today [1]. The term, globalization and internationalization have many meanings with some common characteristics notably, cross-border interaction and the pursuit of growth. International-student mobility has become one of the indicators of higher-education quality [2]. Academically mobile students tend to demonstrate a higher level of personal maturity, global outlook, intercultural competence, and engagement in international career exploration [1,3–7]. Faculty worldwide are encouraged to internationalize their curriculum and advance global education.

In the United States (U.S.), the purpose of internationalizing the curriculum is to infuse strategies for preparing students of the 21st century with a worldview and to balance nationalistic interests [8]. The term Study Abroad is generally the term used to describe programs for students who engage in international travel as part of their curriculum. Internationalizing the curriculum and Study Abroad are often not in the same academic unit. In Russia, internationalizing the curriculum and travel programs are under the umbrella of international academic-mobility programs for the purpose of interdisciplinarity and integration to overcome national isolation and acquire a global perspective [9]. Although this collaboration is between Russia, China, and the United States, this article focuses on the insights of students and faculty at The Chita Institute of Baikal State University and the University of Minnesota as these authors have embraced a research approach to their activities. The collaboration in China was through the international communications office in 2017–2018.

The inclusion of virtual activities to explore and gain experiences in border crossing is a low-cost, low-stakes approach to increasing opportunities and interest among students who have been marginalized in international mobility or study abroad programs [7]. As the authors have embraced Integrated Multicultural Instruction Design (IMID) for promoting success for all students [10], adding an international component seemed to provide a potential, necessary, and logical improvement. IMID is a student-centered model developed to advantage students who were once marginalized in postsecondary education without disadvantaging students who enter the academy from a position of privilege or an understanding of the cultural capital needed to be successful.

2. Background

The authors of this article have been working together since fall 2014 attending to their students concerns for enriching their disciplinary knowledge with global perspectives. Their students want to know first-hand how students from other countries see themselves, view students from other countries, and how this informs their disciplinary knowledge. Their students want to know if students worldwide have access to the same disciplinary knowledge and how their life experiences integrate with their disciplinary knowledge. The authors share a commitment to engaging students in their respective institutions in international collaborations so that their undergraduate education years, regardless of economic constraints or barriers to international travel, become a time to explore what it means to be a citizen of their country and how that identity informs, filters and prepares them for a more globalized world. It is important for all students, not just the economically advantaged, to experience international friendships, collaboration, study, and perspectives while discerning their place in the world and exploring career options [11]. UNESCO in 2017 reported that in 2015, only 2% of tertiary education students studied abroad [12]. In terms of participants' gender and social characteristics, women from higher socioeconomic brackets dominate the participation in international programs, particularly, study-abroad programs [13].

It is also quite evident in the literature that there is underrepresentation of students from lower socioeconomic tiers in international programs and global studies. Students marginalized within their local campus culture are also marginalized in the international programs of their institution [14,15]. Students envision the replication of the barriers (racism, sexism, ableism, etc.) they face at their home institutions occurring abroad and/or accentuated abroad because of the host countries' culture norms or their lack of familiarity with the culture and language of the host country.

In a study focusing on the differences in factors that influenced intent to study abroad between white and nonwhite students, an integrated model of student choice looked at human and financial capital that might influence the core benefit–cost nature of decision-making about study-abroad intent. The perception is that study abroad will add costs to undergraduate education, may lengthen time to graduation, is a complex process to navigate, and carries some risks (personal-comfort level based on identity issues (gender and race) and language barriers. Although study-abroad programs address and ameliorate these issues, student perceptions continue [16].

Students who identify with disabilities also share some reticence for traveling abroad. National and local laws for educational accessibility and accommodations vary. For the most part, in Russia and China, except for new building occupancy permits, accessibility can be limited. Educational accessibility and accommodations are also limited. Due to financial constraints in higher education in many counties, students with disabilities requiring unique technology or human support can only take advantage of higher education if they bring these resources with them to campus [17–19].

Designing and implementing a program that connects all students with students from other cultures, while being grounded in familiar surroundings, can only help bridge the gaps in resources and dispositions identified in the literature [1,20]. In fact, there is research that documents greater gains in intercultural competencies when students' participation in activities related to internationalization at home [21].

2.1. Country Specific Descriptions

A brief description of the tertiary students in China, Russia, and the United States will further introduce why the authors embarked on this project to engage undergraduate students in international experiences. Each country has a unique need for this type of experience. As Tables 1 and 2 below identify, USA has a high ratio of inbound tertiary students (5%), with China being the highest source of their inbound students [22]. At the other end of the spectrum, China has 2% outbound students as the percent indicates and the United States has the lowest percentage of its tertiary students studying abroad (0.4%). Although Russia has a low percentage of outbound tertiary students, as a nation it is experiencing greater success in inbound tertiary students than China but lower than the United States.

Table 1. Inbound and outbound tertiary student in 2015 as a percentage of total tertiary students.

	United States	Russia	China
Inbound Students	5.0	3.9	0.4
Outbound Students	0.4	0.9	2.0

Table 2. Inbound and outbound tertiary student in 2016.

	Outbound from United States	Outbound from Russia	Outbound from China
Inbound Students to Russia	160		10,693
Inbound Students to China	0	0	
Inbound Students to United States		5156	309,837

When examining the data more closely, it is evident that the cross pollination of these countries in real numbers is quite limited other than outbound Chinese students to the United States and Russia [22] (Table 2).

Study abroad is just one aspect of international and global initiatives. Since the adoption of the European Higher Education Area (EHEA) in 1999, virtual mobility has been a principle and essential component of university education [20]. In the United States, apart from massive open online courses (MOOCs), collaborative online international learning (COIL) is a term used for the past six years to describe virtual international learning opportunities [20]. Internationalizaton at Home (IaH) is another term introduced by Bengt Nilsson in 1998 and used in the literature to encompass informal and formal, international, or home-based initiatives that are intentionally designed to promote intercultural, international and global learning [23]. The activities described in this paper broadly fit an IaH model. The major difference between COIL and IaH is COIL usually infers a course- and research-based program between collaborating higher education institutions, whereas IaH can involve course- or extracurricular-based programs without a disciplinary research focus.

2.1.1. Chita, Zabaykalsky Krai, Russia

Notwithstanding all the technological advances in communication, global openness, and interconnectedness, young people in Chita often feel isolated from what is going on in the larger world. They do feel the influence of globalization, but they see themselves as outside observers rather than actors in the system of international business, economic, and academic interaction. In this connection, one of the critical tasks of professional instruction is to get students to know the system of values and customs of the countries they are going to deal with in their professional life. Student are exposed to the way business is conducted and the way government works in those countries. Whatever students do in their future professional life, they are advantaged by seeing themselves as members of a global community. That is why the idea to bring students from different countries together is important to Chita students and faculty. Students and faculty embrace the opportunity to get an experience of cross-border interaction and joint research.

Many students in Chita learn both Chinese and English. Being the most important (universal) language of international communication, English is taught in all schools and colleges of the

Trans-Baikal region of Russia, regardless of degrees or majors. Chinese is in local curricula for territorial reasons—the region borders on China, its main trade partner. Due to Chita's remoteness, however, synchronous contacts with students from English-speaking countries are rare, as are academic contacts with Chinese counterparts. Modern communication technologies hosted by higher educational institutions can provide students with international involvement through the use of video chats, Skype conferences, and person-to-person contact.

2.1.2. Minneapolis, Minnesota, USA

The University of Minnesota (UMN) has an institutional goal of engaging 50% of the undergraduate student body in study abroad or formal international experience before they graduate. Unlike students from Chita, students in Minneapolis do not feel isolated. Technology and widespread use of the Internet allow students to feel more connected in the United States and the rest of the world. The University of Minnesota also has a large international undergraduate population, (2816, 13%) so there are opportunities for domestic students to interact with foreign students formally or informally on campus [24].

In the U.S., nearly 50% of undergraduate students are not interested in or do not believe that study abroad is possible in their undergraduate years. Much of the reluctance is due to finances, and the lack of foreign language skills or the ability to complete undergraduate four-year curriculum in a timely manner with a semester abroad [13].

The international program, described below, was designed as an extra-curricular activity at the University of Minnesota in 2017–2018, fitting into the IaH model for internationalizing the undergraduate experience. Student engagement was dependent on motivation outside or a course grade or academic credit. These two factors affected participation. As the literature indicates, students who previously had an international experience domestically or abroad are more prone to participate in international projects [13].

The U.S. has greater success in having foreign students studying in the United States than having U.S. students studying abroad. Many campuses, including the University of Minnesota, therefore seek to engage domestic students with international students that are already on campus [21]. This project introduced a third alternative, virtual connecting and establishing relationships between and among undergraduate students from Russia, China, and the United States while they are studying at their home institutions.

3. Case Studies

This is a preliminary qualitative examination of the strengths and weaknesses of two student-centered, Collaborative Online International Learning (COIL) projects designed with access at their core. Both projects (International Students Day and the course-based economic project) were built around University Instructional Design (UID) and Integrated Multicultural Instructional Design (IMID), emphasizing access for all and minimizing privileging one group over another [10]. The report focus on the general principles of designing these international projects first, then will focus on the three-hour International Video Conference followed by the Chita Institute of Baikal State University course-based economics project. The authors consider these activities to be a pilot project engaging three countries, three time zones, and three campuses. In the 2018–2019 academic year, more in-depth formalized projects will be conducted and evaluated.

3.1. Formation

The authors use a critical multicultural pedagogy in their disciplinary fields and infuse international perspectives into their courses encompassing extracurricular activities, as well as research. Over a period of four years, the authors had ongoing virtual communications, primarily bimonthly audio/video conference calls and two face-to-face meetings, one in the U.S. and one in Chita, searching for ways to incorporate their professional commitment to the internationalization of their

curriculum with student engagement at the core. Both authors also had a cadre of students who were motivated to know more about undergraduate students from other countries and develop a more intercultural competence and a worldview informed by person-to-person conversation rather than being informed primarily by political and media outlets. The students in Chita as in Minnesota, requested more international perspectives in the content and approach to course work. Given the global tensions and the belief that the U.S., Russia, and China are global powers, conversation on how to build a three-way connection seemed more feasible than just a connection between Russia and the U.S. students.

When adding an international component, there are privileged stances that countries can make. For instance, in Russia and China, many elementary and secondary students take English as a second language. One could use that privilege to hold international dialogues in English; however, that would privilege students in the U.S. who are more fluent in expressing themselves in English. For the purpose of equalizing the ability of students from each country to participate fully, it is more appropriate to use a UN approach to dialogue as is described later in this discussion.

3.1.1. International Students Day Format

Through the international office at the University of Minnesota, in June 2017, a contact in the Office of Global Affairs at the Harbin Institute of Technology accepted the offer to participate in the development of this first formal activity, a Tricountry Video Conference centered on commemorating International Students Day (ISD). International Students Day was chosen as it is a nonpolitical commemoration of multiculturalism of international students for promoting active citizenship and student solidarity. ISD is commemorated around the world, and has a history of student support in Russia, China, and the U.S. An idea that was conceived in March 2017 is now materializing. An international conversation began with the goal to help undergraduate students see their place in the world and envision their future as individuals, innovators, workers, and/or leaders in this globalized world, using people-to-people conversations to contextualize what they read and study. The opportunity, requested by students and advanced by their faculty, "connected" students with their world peers. An ongoing relationship developed to foster students' educational goals and global visions, to see the similarities and differences in their hopes and career plans as they occupy one world. The intention achieved was that international exchanges between faculty, students, and curriculum could grow from a well-defined collaboration and exchange.

The design of this first international video conference incorporated the principles of multicultural instructional design and COIL. Fusing these two core methods of teaching and learning lead to a virtual mobility experiment and the beginnings of a collaborative online international learning course. The basic principles of the project were:

- Student centered;
- collaboratively designed;
- all Materials (including audiovisual materials) translated (Chinese, Russian, and English);
- all communication and products accessible;
- all online platforms met global access standards set by host countries.

The primary delivery design was contingent on identifying and implementing information and communication technologies (ICTs) that were compatible among Chinese, Russian, and U.S. educational institutions. Identifying these resources is a dynamic process. Technologies and restrictions on use of software products have made the selection of products for virtual, online education in China, Russia, and the United States challenging, as many products do not meet country-specific content-filtering criteria. The prioritization was to look for a way to legally communicate (without a workaround and/or a virtual private network (VPN) application) and in multiple languages. Finding a platform to store files, edit files together, store videos with closed screen captioning, and host "live" transcriptions in each language so that each site had access up-to-date transcripts of all verbal utterances

became the focus for identifying ICT. Although China primarily used Baidu as a search platform and repository, one could not access the site without use of Chinese characters. Google products are not used in China, and difficult to use in Russia. Russia uses primarily Yandex products, which are in multiple hosted languages, including English and Chinese. Yandex became the platform for hosting all the audio/video/print files. Each site could access the platform and materials in their own language, as well as in two other languages as they wished. No campus was dependent on the use of YouTube for video files. One could upload MP4 video files, and each site could use the platform of their choice to view the files. For audio files, MP3s were uploaded to Yandex and could be accessed by their platform of choice. Word files could be created in Yandex or uploaded to it as Microsoft Excel, Word, or PowerPoint files. Yandex also supports storing Adobe Acrobat and jpg files. Yandex uses Microsoft Word Online to allow for the editing of files in real time with multiple authors. Word Online made the hosting of synchronous language transcripts possible to support translation and accessibility. In reports of accessibility for the Google, Baidu, and Yandex platforms, Yandex outperformed the other platforms in most categories (cognitive, upper limb, vision, and hearing) [25].

Another technological feat was finding a video-conference platform that met accessibility guidelines and was accessible to the three countries. UMN identified two Cisco products, WebEx and Acano, to host the conference and to provide a stable virtual environment for all three countries. Although the preference was to use WebEx as the platform in Video conferencing, because of room restrictions on UMN campus, Acano was successfully used. Both of these platforms are part of the UMN technology support services so clients (Russia and China) did not need a special license to participate. There was no additional cost to linking the three countries in a video conference by IP address.

Once the technological issues were solved, the program was collaboratively designed. The format approved by students and faculty at all three sites included,

- Welcome and introductions;
- ice breakers between major activities which were called “tea-time” activities, as that is the more common term in Russia and China;
- Closed-Caption Videos from each of the campuses talking about what it is like for undergraduates at each campus to start the tricountry discussion of similarities and differences,
- Three student presentations, one from each participating country on a conference theme (personal educational goals; hopes and dreams for broadening ones understanding of each other; and the role of the world wide web in promoting or hampering communication), followed by a three-way group discussion;
- Next-steps discussion, “What would you like to see in the future”; and
- a site recapping the day’s events, thank you, and signing off.

Students were the core of all the activities. As appropriate, faculty were facilitators. The one additional element of this collaboration was that, before the video conference, each student provided a picture, short bio (4–5 sentences), and contact information (social-media addresses, email, etc.). Copies of these introductions were available at each site to support students recognizing names to go with faces and voices.

3.1.2. Chita Institute of Baikal State University Course-Based Economics Project Format

Another project that brought students from Russia and the U.S. together was a collaboration within an interdisciplinary course on the U.S. economy. This course was part of the fourth year students’ curriculum in the Global Economy department at Chita Institute of Baikal State University. The importance of an interdisciplinary approach to teaching has long been recognized, especially when it comes to professional training coupled with foreign-language proficiency [9]. The U.S. economy course is interdisciplinary in that sense.

First, all the issues to be discussed in the economy courses touch upon national identities of the countries in scope. Economics is placed in an historical and cultural context. It is perfectly in keeping with the key concept that education processes be guided by: knowledge before judgement.

Second, while all the theoretical courses in the Global Economy curriculum are naturally taught in Russian, the U.S. Economy course is taught in English. Within this course, students had an opportunity to do a research project on an American socio-economic topic and present their research at the end of term in a class session. The faculty member from UMN was not teaching during the January–April, 2018 term so linking two classes was out of the question. In order to accommodate the 4th year undergraduate student in Russia, a cadre of interested student and community members from Minnesota were recruited to work on the 4–5-week projects with Chita students studying the U.S. economy. The topics of interest were:

- Social policies affecting healthcare, social security, temporary assistance for needy families, food stamps, education, unemployment insurance;
- Income inequality including data, reasons, history, protest movements;
- foreign trade including data, major trade partners, trade deficits, most exported/imported goods, trade restrictions;
- the New Deal developments in the U.S. during the 1930s and 1940s;
- government shutdowns;
- U.S. monetary and fiscal policy; and
- the concept of "the American Dream" and development of "Manifest Destiny", its history, and one's present-sday understanding.

For this project, a closed group was established in Facebook where participants could video chat, post papers, and engage in dialogues within a private space. Facebook is accessible with support contingent on the browser selected by the user and the adaptive software (Jaws, Dragon, etc.). UMN as an institution cannot require students to use Facebook for class activities. Students are only required to use an authorized Learning Management System (LMS). Since the students from UMN were volunteering to participate in this project and not assigned as part of their course work, Facebook was acceptable. Even though most Russian students have a VKontakte (VK) account for online social media and social networking services (a Facebook equivalent), and UMN students were open to using VK for this project, in the end most students found that Facebook was friendlier for setting up a closed network for posting. Chita students conducted research on one of the issues listed above individually or in groups of two or three students using the following process:

- They shared drafts of their presentations with U.S. citizens (UMN students and community members) of different ages and backgrounds to ask for their personal view/experience/ideas about major economic and social aspects of life in the U.S.
- UMN students and community members answered questions posed by Chita students about their topics.
- UMN students and community members found documents, resources, and personal statements about the research topics to share with Chita students.
- UMN students and community members read papers written by the Chita students and provided comments and clarifications.
- Russian students analyzed the feedback in their papers and presented the results in class and at an annual youth conference.

4. Results

The International Students' Day project involved 45 students from the three biggest universities of Chita (Baikal State University, Chita State Medical Academy, Trans-Baikal State University), six students from University of Minnesota with 9 community member observers, and six students from Harbin

Institute of Technology. It was a tricountry video chat for students from Russia, China, and the U.S. to share their vision of the world and where they are in the world. The numbers here support the observation from the faculty that Chita students want to engage with communities in other countries. The quotes that follow further support this claim.

> We are all part of global community. . . . we should be interested in news about events taking place in different countries of the world; take part in various international forums, festivals, international conferences; get acquainted with people of other countries; travel; learn foreign languages; study the history of our own state and other countries, observe how relations between states changed in different periods; learn more about the lives of people in other countries, their culture, their behavior. . . . Most people want to live in peace with others, to accept and understand the traditions and ways of different nations, cultures and religions. In order to better understand the thoughts of people of other nations, it is necessary to study the languages of the countries and nationalities, to learn their culture, the history of the state. We should also show greater understanding of other nations, their culture and ways, appearance, national identity. And, of course, in any situation, we must remember that we are all humans. (From Chita students' presentation)

The Chita Institute of Baikal State University course-based economics project involved all the students from the U.S. Economy (18 students) course plus the Minnesota participants for a total of 28 members interacting in Facebook with the 15 papers. Some of the economic projects were subsequently submitted to an annual undergraduate student research project contest in Chita. They were highly ranked above their peer researchers and undergraduate institutions. The project gave students the necessary first-hand information and personal interaction experience that is critical for better global understanding and further practical use of the theoretical knowledge they learn in classes. Although academically, this project was a credit bearing for students in Chita, students in Minnesota volunteered to participate and added to the research done by the student in Chita. It was a venture in intercultural communication using the IaH process with much student satisfaction in Minnesota and Chita as captured in these statements, "please accept my gratitude for taking time to answer my questions. I was very glad to get your opinion! You made a valuable contribution to my understanding of the problem"; "your opinion is very important for us and useful for this research", "Thank you so much for the skype today! It was VERY interesting and important for the project!"; "I like your references to fiction, specifically Great Gatsby and Citizen Kane, in explaining the American Dream. These were good choices, and very relevant to the topic"; and "thanks a lot for your help! I am very grateful to you that you answered not only my questions, but also expressed your own opinion on the issue. I'm glad you liked the topic. It is very important for me. I really like your point of view. I will certainly take into account it in my report!" As much of the other feedback and communications between students were not within the closed Facebook group or on Skype, the authors did not capture a sampling of all the feedback.

Although most students from China and Russia were engaged in a first-time experience interacting with American students, most UMN students have had previous interactions with international students from Russia and China. There are numerous Russian and Chinese student groups on campus. The depth of conversations and interactions with the students from Harbin and Chita were quite different than interacting with the international students on the UMN campus who are from western Russia, not Siberia, and southern China, not Heilongjiang. This student-centered project will grow this year into a three country, course-based project addressing accessibility issues and reaching out to students who have been marginalized and are not quite ready for international travel.

5. Conclusions

The above projects were exploratory and first attempts to bridge nations and cultures. The groundwork for handling the technology aspect of this project are resolved. The identification of

professors interested in advancing internationalization of their curriculum and engaging in research projects and publications to advance intercultural communications are set. The key to COIL and IaH projects is the faculty developing a relationship around shared international goals and interests, and a commitment to support students in advancing their worldview through intercultural communications. A faculty member at Harbin Institute of Technology that has similar internationalizing the curriculum teaching and research interests is identified and will be joining the authors in 2018-2019. There is a commitment by all three faculty to continue a UN approach to conferences encouraging all students to present in their native language.

Building on the first experiences and a commitment to engage in scholarship, the following components will be reviewed and incorporated in the next case studies of this international collaboration:

- The creation or adaption of an intercultural competency instrument to measure student growth in a systematic way;
- formal institutional research review and approval for collecting data from students;
- pre- and post-assessments of students' academic content and intercultural competency growth as a product of their engagement;
- Survey of students' general characteristics that would help identify which groups of students seem to benefit most from virtual international experiences (gender, age, income, past international travel or international experiences, identity affinity groups, etc.); and
- identification of formal processes and documentation of students' collaborative work.

With the addition of these components, the case studies will add to the scholarship of virtual international collaborations.

Based on the experience of the two case studies and the formal meetings between the faculty and their students, students from Russia and China made another request. In students' effort to acquiring a second or third language communication skills, having real conversations with people fluent in the language is paramount. There are three avenues being explored to advance this outcome of the collaboration.

1. The instructor in Chita and her students started an American Movie Club five years ago to watch prominent American films and discuss them afterwards. It was that activity that sparked the relationship between the Chita Institute and the University of Minnesota. Through a nonprofit group, Siberian Bridges, connections were developed between the Chita Institute and the University of Minnesota faculty. The Chita movie project, along with improving students' language skills, helped students understand the culture, the reality, and the characterization of some American people. This experience whetted the appetite of the young people in Chita to know more about America independent of politics and media. The logistics of a synchronous movie club between the three countries with international films is still being discussed. Given the time parameters (Coordinated Universal Time −5, +8. and +9) there are challenges this activity presents that a conference or coordinated class session does not pose. Each country has morning and evening courses that can be coordinated but movies with popcorn traditionally is an evening activity in all three countries. A resolution to this request has not materialize yet.
2. During summer 2018, an evening of conversation with Americans was held in Chita. Over 75 residents from Chita attended via word of mouth to have a conversation with six English-American speakers. In travels to Harbin in summer 2018, similarly, students from Harbin had their first in-person conversation with an English speaker, struggling even though they had many years of English language preparation and could pass a TOEFL test to study in the U.S. Students had limited experiences with actual conversations. Although these activities are not goals for internationalizing the curriculum, they present other needs for language development among students in the three countries. How to address this student need and request is still in

discussion, but there are many ways to synchronously accomplish this goal. Although English conversation will privilege English speakers, it is possible that attracting second language learners studying Chinese and Russia in Minneapolis and Harbin could add to the efforts to provide equitable opportunities for all students.

3. The development of a new course at the Chita Institute on Asia-Pacific Transnational Economic Cooperation, integrated with English as the language of instruction, is being pursued by instructors in Chita. The course also seeks to involve Chinese participation. It is an outgrowth for this project and addresses student concerns for an undergraduate curriculum infused with international perspectives and intercultural skills.

Using a UN approach has been helpful for developing intercultural awareness among the three countries without privileging U.S. students, but it has also uncovered an underlying concern from Chinese and Russian students to have opportunities to develop their English language skills as English is used in many international settings. At this time, adding a component to our internationalization efforts that support English-language development seems to be appropriate to meet the needs of second-language learners.

This paper was designed to encourage the reader to embark on a project to internationalize their curriculum, promote intercultural competence and a worldview informed by person-to-person conversation rather than being primarily informed by political and media outlets. Integrated Multicultural Instructional Design behooves professionals to stretch the boundaries of instruction to be inclusive of the global skills and competencies while leveling access for all students. One globalized world—equitable access for all can be achieved.

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Article

Intercultural Pedagogy: A Faculty Learning Cohort

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Abstract: The purpose of this article is to describe and reflect on a pilot faculty learning cohort that was designed to improve the frequency and the quality of cross-national and cross-cultural student interactions in the participants' undergraduate courses. The cohort offered a space where faculty could gain insight on the experience of international students (IS) and non-native English speakers (NNES), develop knowledge about best practices and relevant research, and explore and test tools to promote inclusion and interactions. The cohort focused on cross-national interactions because strong and consistent data indicate that international and domestic students seek more purposeful and substantive interactions, both in and out of the classroom, but lack the confidence and structure to engage in them.

Keywords: intercultural pedagogy; faculty development; international students; diversity; undergraduate teaching

> "The question is not whether or not we want diversity or whether we should accommodate diversity because diversity is clearly our present and our future. The real question is how do we build diversity into the center of higher education where it can serve as a powerful facilitator of institutional mission and societal purpose." [1] (p. 3)

1. Introduction/Overview

In this article, we describe and reflect on a pilot faculty learning cohort that was designed to improve the frequency and the quality of cross-national and cross-cultural student interactions in the participants' undergraduate courses. The cohort offered a space where faculty could gain insight on the experience of international students (IS) and non-native English speakers (NNES), develop knowledge about best practices and relevant research, and explore and test tools to promote inclusion and interactions. The cohort focused on cross-national interactions because strong and consistent data indicate that international and domestic students seek more purposeful and substantive interactions, both in and out of the classroom, but lack the confidence and structure to engage in them.

With this context in mind, we will describe the factors that enabled our pilot cohort to emerge, as well as the salient design features and core principles, rooting them in the research on multicultural pedagogy and intercultural development. We ran multiple pilots, but we will focus on one in particular which brought together faculty from General Chemistry, History, and Social Sciences, all of whom

teach first year courses that meet liberal education requirements, and each of whom was at a different level of experience/development in the continuum of intercultural development (from novice to intermediate to advanced).

Finally, we share the key takeaways from the pilot, including inviting perspectives and dialogue among the participants. The purpose of the roundtable format of dialoguing is to enact two of the principles and practices of our cohort program: the value of engaging multiple perspectives and, the importance of realizing and operationalizing the maxim that 'no one size fits all'. Engaging diversity—among our colleagues or within our classrooms—requires us to begin by honoring the different entry points and by valuing the multiple takeaways participants will experience. An effective intercultural learning community will reflect that reality and leverage it to collective ends.

2. Background/Context/Need:

> "You are teaching in intercultural classrooms regardless of whether you want to, or are aware of it, whether you think it is your responsibility or relevant to your discipline. It isn't a choice, because human diversity is present in and impacts every classroom, regardless of whether it is visible and whether it is solicited." [2] (p. 15)

Various stakeholders have strongly advocated the need for U.S. undergraduate education to explicitly and systematically develop the skills and knowledge graduates need to successfully navigate a complex, diverse, and increasingly interconnected world [3–5]). The American Association of Colleges and Universities' 2007 report, "College Learning for a New Global Century", calls intercultural learning, "one of the new basics in a contemporary liberal education. essential for work, civil society, and social life" [3] (p. 15).

In support of globalization, many institutions have sought to enroll more globally diverse undergraduate students. Our institution is consistent with the broader trend in U.S. higher education to proactively recruit and enroll higher numbers of international students. In the past decade, according to the Institute on International Education Open Doors Report [6], international student (IS) enrollment rose from 623,805 in 2007–2008 to 1,078,822 in 2016–2017. In percentage of total undergraduate enrollments, IS increased from 3.45% in 2007–2008 to 5.3% in 2016–2017. At the University of Minnesota, IS enrollments went from 2% of total undergraduate enrollment in 2006 to just over 12% in 2017 [7]. In addition to actively recruiting international students, the university has also placed greater emphasis on globalization as an institutional priority in research, demographics, and educational goals. Material decisions—in the areas of resource allocation, admissions, and strategic planning—reflect the institutional priority of internationalization. However, when it comes to operationalizing this priority, in the arena of undergraduate education outcomes and experiences for example, the change has been more complex and slower to achieve.

The research is clear that effective or meaningful interactions do not just happen and do not directly accrue as a result of diversification in enrollments [2,8–10]. Intercultural habits of mind and the necessary skills to engage diversity do not occur by 'osmosis' alone; (students) must be exposed in practices and understandings of the 'other' and actively involved in an intercultural experience. Students develop intercultural effectiveness over time and with practice and reflection. In other words, students need faculty and instructors who are designing and facilitating "purposeful tasks through which they can develop the capacity to observe, to explore, to listen and to ask questions" [11] (p. 247). As Harper and Antonio [8] argue, we know that "students and society could ultimately benefit from new approaches to cross-cultural learning", and therefore "failing to take the necessary steps to intentionally create enabling conditions [in and] outside the classroom is downright irresponsible" (p. 12). Faculty and instructors need intentional and focused professional development in order to understand and to be skilled at creating the necessary conditions and promoting cross-cultural learning. Many disciplinary associations have explicitly recognized and called for specific intercultural pedagogical training for faculty in order to promote interculturally competent graduates [12–16].

At our own institution, as in U.S. higher education more broadly, the increased enrollment of globally diverse students has prompted examination of what it means to meaningfully include and integrate students, and what is required in order to engage diversity and not only to 'have' it [2,17–19]. While increasing demographic diversity is important towards various education equity goals, this enrollment strategy does not—in and of itself—ensure that either faculty or students will become more effective or confident at engaging diversity or participating intercultural interactions [20–22]. Recent institutional research [23], including quantitative and qualitative studies with faculty and students, domestic and international, highlighted questions and current challenges about the degree to which our campus climate is inclusive, and for whom? To what extent do students feel confident and encouraged to interact in and outside of classes? To what degree are faculty skilled at promoting inclusivity and meaningful integration of diverse students? In particular, four salient themes form the context for our faculty learning cohort, themes that are identified in contemporary research in the field of internationalizing education and diversity and equity in higher education, as well as in our local institutional research:

1. Students report discomfort and lack of confidence about entering cross cultural interactions;
2. International students and non-native English speakers report higher levels of isolation and lower levels of a sense of belonging;
3. Faculty acknowledge there are opportunities for intercultural interaction in their courses, but express discomfort and a lack of explicit knowledge about how to facilitate them;
4. Students are looking to faculty to be models, coaches, and facilitators who support students' skill and confidence development in intercultural interaction.

The impetus for the cohort came from institutional research conducted at the University of Minnesota. The cohort design and its intended outcomes are rooted in the fields of intercultural development and multicultural education. While intercultural education, multicultural education, and Universal Design for Learning are diverse fields of scholarship with their own professional associations and journals, they share a fundamental premise: access and accommodation are important components of equity but they are not the same as nor do they replace meaningful inclusion which is necessary to full participation. In order to pursue and promote meaningful inclusion, it is essential to reframe the 'problem' so that we understand the limits and deficiency is not with or in the student but is rather in and with the curriculum and this requires skill and knowledge development on the part of instructors/faculty, the designers and deliverers of the curriculum [2,24].

At the University of Minnesota, a fee is charged to international undergraduate students with the expressed purpose of supporting their 'success and satisfaction'. The money is distributed as grants to faculty and staff who propose projects that meet criteria relevant to the fee's purpose. In the case of this pilot, directors from two campus entities (Center for Educational Innovation and Global Programs and Strategy Alliance.) were awarded the grant funding. The award provided modest professional development funds for the participants, the purchase of a book for participants, and allocation of time/workscope for Lee and Smith who were appointed to design, develop, and administer the faculty development cohort and coaching programs.

3. Assembling the Cohort

In the semester before the cohort was run, Lee and Smith reached out to undergraduate faculty and programs with high levels of international student enrollment and in areas where the recent institutional research indicated a need for more effective interaction between students. They had conducted many course observations, reviewed curriculum, and had conversations with potential participants from diverse disciplines and levels of experience with intercultural pedagogy. Their goal in this phase was to assess and utilize the broader institutional data about international students, non-native English speakers, and domestic students within the context of direct observations and

discussions, so as to design the cohort program to be responsive to current, pressing priorities and day to day realities of teaching.

Ultimately, Lee and Smith developed two pilot programs: one pilot took the form of an interdisciplinary cohort wherein up to six participants would convene biweekly, work from a shared and explicit set of expectations but identify specific topics and goals that reflected their priorities and needs. The second pilot program took the form of intensive, long-term 1-1 coaching that Lee and/or Author 3 provided to individual faculty around specific assignments, issues, and needs that emerged from the course observations and curriculum review.

This chapter focuses on the interdisciplinary cohort model. We will highlight the salient design features and present reflections on the cohort experience and its impact as presented by participants. The cohort members were invited to individually reflect on the experience and to write about critical moments and key takeaways. The venue for this reflection took place in two forms, and on two occasions. First, Lee and Author 3 scheduled individual meetings with each participant and asked them to come ready to discuss: (1) what was a high point? (2) what was a low point or dissatisfaction? (3) what are key takeaways? (4) what should we change for next cohort? These hour-long meetings were used to synthesize notes and to generate an agenda for our end of pilot retreat meeting in May. Following that end of year retreat, participants were invited to reflect in writing on similar prompts for the writing of this chapter.

Lee and Smith sought to assemble a cohort that was intentionally diverse in terms of participants' discipline, teaching experience, position description, and level of skill with intercultural pedagogy. We sought diversity because we hoped that the cohort itself would be a laboratory space where participants could practice and experience the power and potential of engaging diversity. This is an important challenge for faculty learning communities given the deeply internalized tendency to rank one another by job title, level of experience, etc. In assembling and convening the group, it was made explicit that everyone brought forms of expertise that would be valuable and everyone had areas needing development and skill building in relation to intercultural pedagogy. So, rather than positioning Leopold, the least experienced teacher in our cohort by more than a decade, as 'the novice', the member we would all 'help', we consciously and explicitly positioned her as another expert and drew out the unique insights and perspectives that she had and which contributed to everyone's development. As Leopold herself reflects, "not having much background in diversity or the needs of international students the first few months of the cohort consisted of reading literature, having discussions centered around international students' needs and experiences, and attending related workshops. This start was critical for me to establish common understanding within our group and to make sure that we all had a foundation to build from. I quickly realized that it didn't matter that we were all from different disciplines because we had the common goal of improving international students' experiences in our classrooms and this goal transcended our individual content knowledge."

Our cohort included professionals from Chemistry, English, History, Social Sciences, International Education and from a variety of faculty and administrative positions, including two professors who also serve as directors, one senior fellow, two teaching specialists, and one education specialist. We sought to include members who hold leadership roles in their undergraduate programs (directors of large enrollment first year general education courses; program leads responsible for training 30–50 graduate teaching assistants each year, and so on) and on convening participants with a range of experience with intercultural pedagogy, different disciplines and levels of undergraduate teaching. Five of the participants took on co-authoring responsibilities on this chapter.

4. Key Design Elements of the Interdisciplinary Faculty Cohort

4.1. Establishing a Shared and Explicit Focus

We started the intercultural pedagogy cohort with the goal of reflecting on how international students navigate our classrooms and what we can do to improve their learning experiences and meet

their needs. The primary objective of the interdisciplinary faculty cohort was to help participants become better facilitators of intercultural interactions in their classes. The 2017 report issued by the Commission on the Future of Undergraduate Education [25] urges attention to how we define, train for, and assess undergraduate teaching effectiveness:

> A growing body of research also indicates that significant student growth occurs when colleges provide structured opportunities for students from diverse backgrounds to learn and practice the skills and capacities needed to create real connection. This only happens when institutions leverage curricular and cocurricular activities that promote meaningful and sustained student dialogue and interaction. To do this most effectively, faculty must be prepared to become facilitators as well as instructors. (p. 14)

The importance of well-designed, relevant, and facilitated interactions cannot be underestimated in serving all students in cognitive, interpersonal, and intrapersonal development. As faculty, we must design our learning environments so that they intentionally structure and value "active, intentional, and ongoing engagement with differences in people, in the curriculum, in ways that increase one's awareness, content knowledge, cognitive sophistication, and empathic understanding of the complex ways individuals interact within systems and institutions" [26]. The selected bibliography we provided and reading we assigned, the structuring of the retreats and meetings, and the course observations were geared towards modeling facilitation, focusing participants' attention on how effective facilitation is designed and delivered, the experience of an effectively and intentionally facilitated group, and the reality that groups do not magically or naturally facilitate themselves.

We intentionally left space for participants to determine their own priorities and pressing needs related to their work with the cohort, but we sought to build a solid structure within which to explore and develop. As one participant reflected, "One thing that made a big difference was our mentors' understanding of practical, realistic changes that could be made within our course and lab parameters. They didn't ask us to do a complete overhaul of our course but rather guided us into thinking about small incremental changes that could have a large impact on our students' experiences and learning."

Lee and Smith understood that making course revisions for the purpose of engaging diversity can seem daunting and amorphous to overcommitted faculty who are already doing innovative and amazing work with students. Our focus was on developing the mindset to value diversity as an asset, not a deficit or challenge, and to share concrete strategies from universal instructional design that are adaptable and feasible to implement without radically overhauling one's course content.

4.2. Create Clear Roles and Expectations

Well-functioning teams need clarity of purpose and clear expressions of responsibilities to enable members to contribute effectively. This can be deceptively challenging—perhaps especially so with faculty who value personal autonomy—given that clarity and responsibility must also permit some flexibility and capacity for modification as needed. The team achieved this balance during the semester by having responsibilities clarified at the beginning of the process within a "letter of understanding" (LOU) provided to the faculty mentors. The LOU constituted a signed formal agreement. The LOU was preceded by in-person meetings between the faculty mentors and the two principle facilitators/coaches who verbally expressed the main components of the LOU and what the faculty mentors could bring individually and collectively to the team. These initial processes enabled the necessary member responsibilities and flexibility to emerge in a well-balanced manner.

Specifically, the LOU outlined the following essential objectives and responsibilities:

1. Develop an awareness of the international student (IS) experience in their classrooms, including the contributions they make to learning and the challenges they face;
2. Examine their own approach to and assumptions about diversity in their classrooms through the lens of intercultural pedagogy and universal design;

3. Expand and implement inclusive teaching practices and strategies in their course(s) that promote integration and engagement of all students and meet course, department, and institutional learning objectives (Letter of Understanding).

Embedded within the LOU is the acknowledgement of the value that international students bring to postsecondary classrooms; the expertise that faculty mentors bring regarding intercultural pedagogy for all students; the contextual realities of specific courses, departments, and student groupings which necessitate certain levels of customization; the important expectations of time commitments and two-way observations (to observe and be observed as teachers thus implying the interconnectedness and transference of much that we do or can do); and, the reality that faculty mentoring can be a longer term proposition with evaluative and consultative work possibly extending to three semesters (2018–19). Also, and of great importance, the LOU expressed a strong, meaningful collaborative tone that included co-planning and the co-delivery of intercultural pedagogy cohort meetings. Furthermore, the LOU included intellectually engaging elements such as intercultural pedagogy and universal design each of which are rooted in rigorous scholarship.

In addition to establishing clear objectives, the Letter of Understanding outlined explicit expectations and deliverables. Each participant agreed to:

1. Commit 5 hours per month as a core contributor to the cohort;
2. This includes preparing for and participating in meetings with faculty/instructor participants; observing and being observed; writing in the shared reflection journal, and attending an end-of-year retreat with other cohort participants;
3. Participate in follow-up evaluations and consultations in 2018–19 (Letter of Understanding).

With the parameters of intercultural pedagogy cohort mentoring articulated within the Letter of Understanding, it was possible to move forward in establishing intercultural pedagogy cohort group retreats and regular biweekly meetings. The first retreat in January 2018 provided time (2.5 hours) for all cohort group members to be introduced to each other, to model and discuss ideas for establishing student-to-student interaction on the first day of a course, to review/discuss team member roles and goals, and to discuss particular contexts of the chemistry class and labs. The retreat commenced with an ice-breaker exercise that invited each team member to share: "1. something you're good at; 2. direction you're headed in; 3. something that bugs you; 4. something you're committed to; and, 5. one of your quirks."

These items proved effective in having newly acquainted team members find multiple points of commonality (such as common quirks and commitments) as well as laughter. Establishing team member rapport through this first agenda item enabled us to see the value of such an activity for cross-national students within our classrooms. It also had the effect of making the retreat—and the team as a whole—become a shared enterprise among all team members. With the development of team rapport came the ability to discuss classroom contexts, teaching and learning challenges, and pedagogical techniques more substantively. Members became increasingly free to suggest and challenge ideas with an underlying trust that was helpful when digging into specific classroom-focused questions and observations that otherwise could have produced defensive reactions. As Author 5 writes, "At the beginning of intercultural pedagogy cohort there was a clear emphasis on getting to know each other as people and having discussions about our experiences as educators and learners. Mutual respect, humor, and honesty came quickly and easily for our group. I believe this foundational relationship with each other was critical in the progress and success that intercultural pedagogy cohort had in our chemistry courses. These relationships allowed us to speak freely and candidly about our observations and experiences as well as giving and taking constructive criticism surrounding our courses. Furthermore, I'm confident that at any point in my career I could contact someone from this group and they'd be there to help. This type of long-lasting relationship is priceless."

5. Unlearning Leading: Facilitation as a Shared Endeavor:

Given the importance of facilitation and interaction to intercultural pedagogy, Lee and Smith wanted the group to model and be a laboratory to experiment with facilitation skills, and experience purposeful interactions and multiple roles in our group. Rather than read and talk about facilitation and groups, we wanted participants to experience them and to reflect on the experiences. This took some unlearning.

In the beginning, Lee and Smith created the agenda, selected content, assigned preparation and led the biweekly sessions. After 2–3 meetings, they realized they were focused on implementing the detailed plan for the session, and moving things along at the right pace, versus being truly open to or engaging what was happening and emerging live in the moment. This dynamic is very familiar in traditional models of teacher-learner: such a premium is placed on having expertise, on being prepared and knowing your stuff, on ensuring that no one's time is wasted, on transmitting your expertise to others. Lee's research has consistently challenged this default and often implicit notion of the professor as expert and teaching as transmission. Nonetheless, it was easy to mindlessly fall back on it as a deeply ingrained and comfortable way to make sense and order out of a novel situation and a new group of people who brought different disciplines and levels of experience and expertise regarding our primary topics.

As Smith writes, "It was a reminder that application of these skills is not always easy. I learned that being explicit and intentional (those words again) about modeling intercultural skills and approaches whenever possible is as valuable as the act of modeling itself. Being mindful of when, how and to what end these skills are being used increases their effectiveness and heightens awareness of their value and function."

After the first two sessions, Lee and Smith changed course and invited each of the other members to take a turn facilitating, and offered each facilitator pre-session support in selecting a focus, crafting the agenda, and finding relevant scholarship or resources. The result of this shift from a facilitator-led to a co-facilitation model was an increase in agency and a more substantial and shared ownership. As Smith writes, this decision also allowed her, as a facilitator/learner, "to participate in a different kind of way—coming prepared to support/discuss the topic more deeply and with a different perspective as during these weeks I was not in charge of time-keeping, making decisions about sticking with the plan or veering into other territory (tangents), etc. I believe this turn-taking of leadership made the work more meaningful, more engaging, and more practical."

6. Biweekly Meetings

Regular, biweekly meetings were essential to our cohort's outcomes. The consistency of meeting every other week, in addition to course observations and some scattered 1-1 meetings in between those team meetings, enabled us time to build rapport, allow group agenda and dynamics to emerge and settle.

Leopold noted: "Smith and Lee were very open to making the cohort amenable to general chemistry. They were aware and responsive to the fact that every course and instructor has different needs and aspirations. They did a great job at providing ideas, resources, and weighing in with their expertise to establish structure and guidance. I felt very supported throughout the cohort." In the early meetings of the cohort, there was a clear emphasis on getting to know each other through discussions about our experiences as educators and learners. We did ice breakers at our opening retreat, asking one another about basic, core values related to teaching and learning and our disciplines. At our biweekly meeting, we often began with a lightning round, 'what is on your mind?' or, 'what's a high/low this week?' Sometimes, responses focused on our undergraduate courses, but not always. One of our meetings was soon after the mass shooting at Stoneman Douglas High School and several of us used the opening round to process that event. This time, which we invested in building a foundational relationship with each other, was critical in the progress and success that our cohort had and its impact

on our respective teaching. The group became a place where we could speak freely and candidly, and challenge and coach one another about our observations and experiences.

Delehanty Kelly, "Often when teaching experts advise a professor to do something in a particular way (e.g., have the students do self-reflection assessing why they scored what they scored on exam 1; another example is to spend time on the "get to know each other" stuff which is often perceived as fluff), it is rejected without consideration because there isn't time in the syllabus to cover the content as it is. Our ability to meet as a group and discuss different pedagogical moves meant that we could suggest but then also push back, negotiate and accommodate."

7. Developing Rapport—In Class and in Our Cohort

Given the importance of positive relationships in creating and sustaining productive learning for all students, it is not surprising that establishing rapport emerged as a dominant theme within our team and for our classrooms. Rapport is complex and dynamic, involving different groupings and combinations of collaborative relationships (student-to-student, faculty-to-student, student-to-faculty, and faculty-to-faculty). We also experienced different ways in which rapport could be established; sustained; disrupted; and, used pragmatically to improve teaching, learning, accountability, and reflective practice as teachers.

Leopold observed how establishing student-to-student rapport was an important prerequisite to engaging complex academic tasks and maintaining group accountability: "One change ... was establishing rapport between students. The general chemistry labs rely heavily on group work so it was especially important to us that groups were functioning well. Based on our intercultural pedagogy cohort conversations surrounding group work we identified that students need to spend time getting to know each other before they are asked to complete a demanding experiment or task together. Additionally, group members need something to hold each other accountable for the shared group work. Based on these ideas, we developed a group policy activity for groups to complete together on their first day. This activity focuses on students sharing positive and negative group experiences with each other and then establishing group norms or expectations such as, how will your group deal with inevitable conflict, how important is it that everyone fully participates, etc. This activity [also] encourages students to share experiences and synthesize something together so they feel safe, supported, and have a foundation as they move forward together. However, groups are dynamic so we asked students to periodically reflect on how their group is functioning together throughout the semester."

Poch elaborates on the importance of our group's rapport in his willingness to unpack and rethink the concept of rapport in his classes. "I am confident that I will continue to use some of the techniques that help to develop student-to-student rapport (not just rapport between me and students) and relationship building early in the course experience and methods that work to sustain positive group dynamics and outcomes. In my teaching practice, I tend to place emphasis on my teaching and advising relationship with students (learning their names, course-related interests, etc.) rather than also facilitating student-to-student relationship building. As I observed one of my colleagues teach a first-day class session with a much larger course enrollment than my own, I was impressed by her ability to have students engage one another in dialogue around where they are from, what they believe they are good at, and something that is unique or quirky about themselves (these questions were modeled and used in our first intercultural pedagogy cohort meeting as an icebreaker). While this was a relatively simple task to engage, it was impressive to observe how many of her cross-national students engaged it meaningfully and used it to develop initial conversations about how to organize their table teams and communicate effectively with each other."

8. Peer Classroom Observations

One of the unfortunate realities of faculty life is that we easily become teaching loners who rarely if ever see our peers teach or invite them to observe us for purposes other than required

evaluation. Teaching isolation tends to produce sameness over time even among very good teachers. Classroom observations, followed by a meaningful sequence of engagement activities, were pointed to by all cohort members as a critical element of the peer mentoring. As spelled out in the Letter of Understanding, each participant was required to observe and to be observed. These observations were preceded by an opportunity to focus guests' attention on particular issues or instructional elements, and were followed by debriefing discussions and reflective journal notes from each member. It is important to emphasize that observations serve both parties, and are not one-directional or for the observer. Stepping out of your own classroom and observing another enables you to occupy a detached stance while thinking about how teaching and learning unfold in a live moment. Using the "classroom as text" Lee [27] and Stenberg and Lee [28] allowed each of us to better understand—through direct experience—the particular facets and conditions of our respective classroom environments and dynamics. The observations enabled us to grapple with issues and challenges that surfaced in our discussions at a more nuanced and informed level. Other benefits of peer observations were observing how some of the practices we talked/read about were applied in different ways across courses and the transfer of new ideas into one another's teaching practices.

Seeing a colleague teach and navigate the multiple dynamics of a classroom is very valuable. Also, having one's own teaching observed by members of the group and receiving candid feedback from them proved valuable on a range of questions. Our observation notes and discussions led each of us to refine our understanding of and approach to sustaining cross-national student interactions over time, facilitating functional teams and groups in our classes, and assessing the impact of students' interactions effectively. Observing these issues and discussing these questions in relation to a peer's classroom enabled participants to think critically about their own current practices. In some instances, the observations and subsequent discussions led participants to substantively modify their teaching and learning environments, and in other instances they caused more modest adjustments or reinforced the value of some current teaching approaches.

As Delehanty Kelly writes, "Getting into each other's classrooms is key for me. We resist it so much (I was a part of another learning community and they'd removed that component of the community from it because they'd gotten so much push back from past cohorts) and sometimes it is poorly done BUT it is so important. It gives us something to discuss which is real and not just the magical thinking of what we hope goes on in our classroom. It also allows for us to see the very subtle moves that an instructor can make that change an environment or a moment."

Poch underscored these benefits and the use of classroom observations as a way of productively challenging the status quo. "Personally, I need to have my teaching practices and assumptions about learning challenged productively by peers who can motivate me to further innovate or adjust what I do to facilitate learning among all students. The intercultural teaching cohort became a place of active observation and dialogue across disciplinary/subject contexts where teaching-related strategies, successes, and shortfalls were shared collegially by members invested in student success."

Leopold described her increased skill and confidence at distinguishing what is and is not working well by using course observations and not only relying on student performance on exams, quizzes, and lab reports. Leopold also identified the observations as a high impact element of the cohort. She describes the internal shift that occurred as she began observing "as a teacher" rather than "as a student". "I have obviously participated as a student in numerous classrooms but observing a classroom based on teaching practice and students' interactions was something new to me. At first, I often found myself naturally reverting to 'student mode' and focusing on the content versus focusing on how the students were interacting with the content and their peers. By observing multiple classrooms throughout the semester in all different disciplines, I was able to become a reflective teacher. A skill that will benefit me and my colleagues long after the cohort."

One participant reflected: "being observed occurred on the first day of the semester when a member of the group sat in on my class was a critical moment for me. It was a classic example of the Hawthorne effect—the person being observed changes his/her behavior because of the observation.

I handed out the syllabi and hadn't really thought through what I'd do with it, but because I was being observed and didn't want to do something really boring (read it on your own) or not do something (you are responsible for knowing the content, I'll quiz you next class period), I, on a whim, had the students pair up, read a section and then report out one or two items from their section that stood out as important. It ended up being an effective and engaging way to approach the syllabus on the first day."

Poch explains: "I believe that the feedback from observations of two of my class sessions by my intercultural pedagogy cohort peers taught me to be far more mindful of how much and how long I speak in relationship to students being actively engaged in the course. I am grateful that one of my colleagues in particular was honest and generous enough to call me out on speaking too long during one of my class sessions. While students were engaging with the course content at the beginning of one of the class sessions, the longer I spoke the more they disconnected and rapport was lost. From this I am far more conscious of breaking up the class time with timely group engagements around a question or 'problem' that historians can engage to better understand the multicultural past of the United States. This is better pedagogical practice in general, but it also provides far more time for students to engage in cross-national interactions rather than losing those opportunities to prolonged instructor lecturing. This underscored the value of a team of trusted colleagues who were not afraid to share candidly with one another after classroom observations and to support the improvement of teaching and learning."

Delehanty Kelly explains: "observing the TAs in Chem Lab allowed me to witness the TA who encouraged a group of students who were taking questions following a presentation to 'huddle' so as to work together (quasi privately) to come up with an answer to her question. This one move changed the dynamic of this group's interaction and set the tone for the rest of the groups during the Q & A period. I noticed it because I was in observation mode, trying to figure out 'what creates positive interaction in groups?' I recorded it in the shared reflection journal. I was able to talk more about it with the team later. Because of all of this attention, I later used it in my own teaching."

Furthermore, all participants emphasized the importance and integral nature of the post observations activities: observers were responsible for writing in our shared reflection journal; we discussed observations and reflections from multiple perspectives at subsequent meetings. Leopold writes, "Reading and discussing the other faculty members' observations of the same classroom was a huge learning experience for me. It was so helpful to read their observation and reflect on what they were paying attention to and why. I remember one discussion during our meetings we focused on what does inclusivity and exclusivity look like in our classrooms and labs. These conversations made me think about what learning looks like and feels like and how students are engaging with each other and how they establish rapport? These details matter especially for international students and allowed me to hone my observational skills."

Delehanty Kelly adds, "Having observations followed by a shared write up was also key. It held the observer as writer accountable for framing it in a productive way and also provided an ongoing story line for the readers who were not in the classroom or who were there but had their own vantage point. Finally, coming together post observation allowed us to explain why we did certain things and/or to ask to hear the instructor's perspective on something. This felt especially important for the chemistry professor who had the space to explain the obstacles she felt."

9. The Value of Exploring Campus Resources

One of the expectations specified in the LOU was that participants would explore relevant resources on campus, whether those were workshops, programming, or people who had particular expertise. We provided a list of possibilities, and invited the whole group to highlight and add resources, and the LOU required people to explore a few and to assess their impact or value in our collective reflective journal. This expectation reflects two values of our program. First, our core purpose and objective was to facilitate interactions. Interactions are at the core of effectively engaging diversity in our classes. Second, we wanted not only to build instructors' knowledge and promote new or refined skills but also to have them experience and reflect on various interactions. Therefore,

we focused on both supporting/facilitating and reflecting on a range of interactions, just as one should do in a classroom seeking to promote intercultural skills. We required interactions with faculty colleagues, between faculty and research on engaging diversity in classrooms, between faculty and relevant campus resources, and between faculty and student voices.

The international student panel that three of our participants attended and that Delehanty Kelly helped to organize was a critical moment for all. The students' stories and reflections offered a voice, a face, and a window into their world, their experiences in our classes and enhanced the motivation to create inclusive environments at a new level. As Leopold writes, "It's one thing to learn from publications and books but another to learn through conversations. I value learning directly from people and hearing their narrative and experiences. This is one reason why I like panels so much."

10. Key Takeaways: What Stuck? What Did You Learn? What Are You Better at or More Confident about Now?

At the conclusion of the semester, Lee and Smith invited participants to share reflections about their most significant takeaways and the key outcomes of their participation in the cohort. Embedded in many of the comments was recognition of the reality that every classroom is comprised of unique combinations of students which necessitate certain levels of customization and also possibilities for the nuanced use of some common teaching and learning strategies. There were also expressions of confidence that we each have valuable areas of personal expertise that are manifested in our observations of teaching and learning and the productive sharing of those observations within our cohort group. With the sharing of our respective areas of expertise came deep learning from one another—meaningful reciprocal learning that enabled each of us to carry forward new perspectives and techniques for teaching and learning among highly diverse students. The comments below are reflective of these themes and many others that were shared.

Delehanty Kelly: "I learned that the more one tries different things with different groups of students (and if you are a reflective practitioner) the more you learn. I know this because in this group I discovered expertise that I have that I hadn't ever articulated before. I also learned it because I continued to learn from my peers when I observed their teaching and engaged with them about their approaches to different issues in the classroom. Just like we know that we need to let individuals self-identify about their culture and identity, we need to assess every group of students as unique and needing a customized approach. This means that we need to be continuously engaging in the multiple levels of thought so that we can create an environment that works for the students in front of us. This comes from awareness and reflection, both of which occur when you observe, are observed, write about it and later gather to discuss."

Leopold: "Establishing relationships with such great mentors and educators was especially meaningful to me during the cohort being that I am at the very start of my career. I learned so much from our course observations, discussions, and workshops and often found myself trying to absorb as much information as possible. Even as a teacher, the learning never stops. Because of the cohort, I have a newfound awareness of international students' needs and experiences in and outside our classrooms. Throughout our time together I was able to develop the confidence to address these needs and honor IS experiences to create a learning environment that focuses on positive intercultural interactions along with chemistry."

Smith: "Being part of a learning community with such committed educators was a critical moment for me. Period. Every interaction was an opportunity to gain new insight, deepen my understanding and expand my perspectives of how teaching and learning works in different contexts. Being part of conversations where we grappled with all manner of issues related to the classroom and supporting intercultural learning: participation, what makes a group effective/ineffective; interventions when groups are not functioning well (and feelings about intervening); behaviors that are explicitly and intentionally inclusive, strategies for effectively communicating with non-native

English speakers, gender inequities in higher education, and so much more, influenced my work in this space moving forward."

Poch elaborates on this point that a learning community of teachers works to bring insight, nuance, and confidence to the way in which one approaches teaching. "Several aspects of my teaching changed for the better following the intercultural pedagogy cohort experience. The changes were not direct replications of what my colleagues do, but instead are modifications or 'riffs' on what they do to fit my particular course design, students, and my personality as a teacher. In particular, given what I learned and observed from my colleagues, I will continue to use student teams with greater effectiveness as well as articulating with greater clarity why such teams are valuable within and outside of the context of the course."

11. Conclusions

The faculty learning cohort described throughout this article was successfully guided by a shared and explicit focus; clear roles and expectations for participants; shared facilitation of cohort meetings; development of positive rapport between cohort members and between students; classroom observations that served all cohort members—not just the observer; and the effective use of relevant campus resources. As our group proceeded over a semester, we discovered that humility and generosity were also key ingredients for successful outcomes. That is, all cohort members—regardless of title or academic rank—developed deep respect for what each member contributed in terms of experience, perspective, and commitment to serving all students. Furthermore, each member shared their perspectives regularly and generously through written observations and verbally within scheduled bi-weekly meetings. The combination of clear roles, common commitment to inclusive teaching and learning, and sincere collegial respect enabled deep learning to occur about teaching and learning and the effective use of teaching strategies customized to our unique classroom contexts. As participant comments indicate throughout this article, we became better facilitators of intercultural interactions within our classes as a result of our time together.

These successes were not automatic or always immediate. Sometimes we made some substantive adjustments as our cohort proceeded during the semester. For example, Lee and Smith adjusted the ways in which they planned and facilitated meetings by sharing those roles with cohort members. This change increased ownership in a shared agenda and accountability to one another in what teaching and learning-related topics were discussed and how they were discussed. These shared roles and responsibilities were transferrable to classrooms as faculty participants experienced the value of shared learning and facilitation practices that could then be replicated with students.

Some other changes that we experienced were not necessarily adjustments but instead were associated with the relational development of the cohort members. During a single semester, members became increasingly comfortable with productively questioning teaching practices and assumptions, approaches to assessing learning and course effectiveness, and the ways in which we purposefully form or modify the composition of intercultural student groups within our classrooms. Rapport-building among persons of different disciplinary backgrounds takes time, trust, and the provision of sufficient facilitative guidance to enable members to find important points of common commitment and affinity. This became one of the strongest and most important parts of our cohort experience by intention and design.

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Article

Expanding the Scope of Universal Design: Implications for Gender Identity and Sexual Orientation

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Abstract: This article encourages postsecondary educators to expand the scope of applications of universal design and universal instructional design by exploring how principles of UD and UID can be applied to other social identities, and specifically to gender identity and sexual orientation. There are many parallels that can be drawn between students who are excluded because of their disability and students who are marginalized on the basis of nonconforming gender identity or sexual orientation. It is important that faculty and staff understand intersectionality and interdependence among social identities and consider what steps they can take to apply UID principles in ways that consider multiple aspects of identity in order to provide inclusive educational experiences for all students. Scenarios for further discussion are provided.

Keywords: universal design; universal instructional design; gender identity; sexual orientation; postsecondary students; inclusive pedagogy

1. Introduction

The concept of universal design (UD) has stimulated numerous applications in higher education beyond the architectural and functional intent of its creators [1–5]. Faculty, administrators, and student development professionals at institutions across the US and internationally have been striving to make higher education more accessible to students with disabilities. In the 1990s, three distinct models emerged for applying UD to teaching: universal instructional design (UID), universal design of instruction (UDI), and universal design for learning (UDL). Although the guiding principles for each of these models vary slightly from one to the next, their goals are the same: to provide equitable learning experiences for students with disabilities. Thus, although in this article we refer primarily to UID, our recommendations can apply to each of the three models. Meanwhile, postsecondary educators also have begun to explore other implications of UD for enhancing the educational experiences of *all* students. Why limit ourselves to a single aspect of social identity? After all, was it not the vision of UD to consider *all* users of a space? [6].

For this article, we have chosen to focus on promoting access and success and reducing marginalization for students who self-identify as lesbian, gay, bisexual, transgender, and/or queer (LGBTQ+), or any other student who is minoritized on the basis of gender identity and/or sexual orientation—hence the inclusion of the plus (+) sign in the acronym. It is important to note that LGBTQ+ is an umbrella term that can include a wide range of identities not limited to the terms represented in the acronym. *Gender identity* refers to one's self-perception that guides one's gender expression or presentation. *Sexual orientation* refers to type of attraction to others, whether sexual, romantic,

emotional, or spiritual. Neither gender identity nor sexual orientation is a binary term. Furthermore, gender identity does not necessarily dictate sexual orientation, and vice versa. The *Safe Zone Training and Facilitator Guide* [7] has provided definitions that assist in understanding the terminology that has been used to label these identities, but also has pointed out that there are no absolute, universal definitions, and that preferred terminology is constantly evolving.

Like disability or any other aspect of social identity or group of people who are lumped together for purposes of demographics, within these identity groups there are similarities and differences. Each individual is unique, with many intersecting identities, no single one of which defines them, and any one of which may be more or less salient at any given time. People who have been stereotyped on the basis of their gender identity and/or sexual orientation each have their own story to tell. It is not our goal with this article to minimize the importance and value of individual differences; nor do we mean to suggest that educators should take a one-identity-at-a-time approach to multiculturalism. What we hope to accomplish is to encourage readers to think more broadly about applying models for making postsecondary education more inclusive for all learners. We also want to clarify that we do not intend to infer that these aspects of social identity are somehow more closely aligned with disability than any other. However, we do fear that when educators address diversity and social justice, sexual orientation and gender identity [8], like disability [9], are more likely to be overlooked unless new legislation, court cases, or national or local crises draw attention to them.

We would like to believe that attitudes related to gender identity and sexual orientation, at least in the US, have become more accepting over recent decades. One indicator was the 2015 ruling by the Supreme Court of the United States that same-sex marriage is a legal right. According to *Wikipedia* [10], as of 2018 same-sex marriage has been legalized nationwide in 21 other countries as well. A 2016 study in the US by the Pew Research Center found that 63% of respondents believed that "homosexuality should be accepted by society", while 93% of LGBT respondents to a 2013 Pew survey reported "that society had become more accepting of them in the previous decade" [11]. Pertaining to higher education, the authors of [12] asserted that LGBTQ+ students in the US are more visible than in past decades and have more protections under the law. Garvey, Sanders, and Flint [13] found significant differences in LGBTQ+ alumni perceptions of campus climate depending upon the year in which they graduated and the sociocultural and historical influences of the era. However, postsecondary students who self-identify as lesbian, gay, bisexual, transgender, or queer continue to experience discrimination, harassment, bullying, and microaggressions that can disrupt learning and impede meeting educational goals [14–16].

In this article, we will address how UD and later models can assist in addressing gender identity and sexual orientation when creating inclusive learning environments and experiences. After providing a brief discussion of the importance of understanding intersectionality and the need to address attitudinal barriers, we will outline the evolution of a model that provided additional guidelines to extend UD to embrace all aspects of social identity. Then, focusing on the architectural and functional applications of UD, we will address the design and allocation of physical spaces. From there, we will transition to learning experiences and instructional issues. Next, we will consider student development programs and services, learning support, health and wellness services, and extracurricular activities. Finally, we will discuss microaggressions (i.e., the kinds of subtle slights and insults experienced in everyday life that are aimed at specific identity groups) and provide scenarios for further discussion.

2. Understanding Interdependence and Intersectionality

Hackman [8] discussed the need to understand the complex, overlapping, and interdependent nature of forms of oppression to engage in social justice education. She wrote, "Social justice education addresses the social construction of identity groups, the creation of dominate and subordinate categories with respect to these identity groups (depending on their relationships to power and resources), the systemic power structures within each form of oppression and how these structures overlap and reinforce each other, and the various pathways to liberation". Although noting that at

times it may be helpful to approach one "ism" at a time when working with people who have little knowledge or exposure to a particular identity group, Hackman [8] asserted that "different forms of oppression are not discreet entities that merely *intersect* but are in fact deeply *interdependent* for their very survival". Thus, although this article focuses on equity and access for students who are LGBTQ+, we cannot ignore the reality of how gender identity and sexual orientation intersect with other aspects of each student's identity, and that social justice must be achieved for all.

In his article, titled "Toward Intersectional Identity Perspectives on Disability and LGBTQ Identities in Higher Education", the authors of [17] identified five perspectives that we believe can assist educators in understanding intersectionality, not only between these aspects of social identity but when exploring interdependent forms of oppression in general. In semi-structured interviews, participating students each brought up two or more of the following types of relationships between their queer and disability identities: "(a) Intersectional, (b) interactive, (c) overlapping, (d) parallel, and/or (e) oppositional" [17] (p. 327). Coursework and leadership experiences acquainted some of the interviewees with a social justice lens that could enhance their ability to communicate about intersections among their identities. Understanding their identities as interactive allowed some respondents to view their multiple identities as mutually beneficial and an aid to becoming more resilient, while others noted negative interactions. One student described being a gay person with a disability as being "closeted twice" [17] (p. 337). Those with an overlapping perspective saw the opportunity for alliances, sense of community, and solidarity. Among the perceived parallels were stigma and similar obstacles and barriers, but also the ability to build resilience. Students sharing the oppositional perspective rejected intersectionality *per se*; some even ranked identities. Miller noted that the oppositional perspective "illustrates the strain students felt experiencing multiple oppressions" [17] (p. 340).

Aspects of identity intersect and cannot be considered in a vacuum. Universal design advocates have shared many ways in which modifications and accommodations for students with disabilities can benefit all students. Those who conceived universal design to achieve universal access have made significant contributions to both architecture and education, but this conversation need not be limited to a single identity group. Now, it is time to pursue the next logical steps using a social justice lens.

3. New Models Extending UD's Multicultural Implications

Researchers and practitioners at the University of Minnesota, Twin Cities became involved in implementing UD and UID [18] through the Curriculum Transformation and Disability project (CTAD) [19], funded by the US Department of Education. Basing their work on Chickering and Gamson's [20] "Seven Principles for Good Practice in Undergraduate Education", as well as the Center for Universal Design's [6] "Principles of Universal Design", they created the following guiding principles of UID:

- Create a classroom climate that fosters trust and respect.
- Determine the essential components of the course.
- Provide clear expectations and feedback.
- Explore ways to incorporate natural supports for learning.
- Provide multimodal instructional methods.
- Provide a variety of ways to demonstrate knowledge.
- Use technology to enhance learning opportunities.
- Encourage faculty–student contact. [21]

Clearly, these are basic guidelines for good teaching, but there still can be dissonance between these ideals and everyday practice in the classroom. In an ideal world, faculty would consider the multiple social identities of all students in order to create truly welcoming learning experiences. Are these considerations at the forefront when faculty are developing curricula, or is the primary focus on course content with minimal attention to pedagogy?

As they worked toward implementing UID's guiding principles to foster the success of students with disabilities, CTAD participants began contemplating next step: "Where do we go from here?" [22]. Simultaneously, an intersecting group was focused on adapting Banks et al.'s [23] *Identity Within Unity* to postsecondary settings, resulting in the publication of the *Multicultural Awareness Project for Institutional Awareness* (MAP IT) [24] inventories. MAP IT provided a springboard for expanding the focus of UD and UID to multicultural education [25]. When the Pedagogy and Student Services for Institutional Transformation project (PASS IT) [4,26,27] was funded by the US Department of Education, project participants continued to consider how guidelines for UID might be re-envisioned to be more inclusive of different social identity groups. Eventually, a new model evolved, *integrated multicultural instructional design* (IMID) [28–31]. IMID addressed one of the primary weaknesses of UID [32] by encouraging authenticity in the integration of cultural perspectives. IMID explored not only what we teach and how we teach, but also how we support and assess learning. The UID guidelines were revisited, and the following IMID guiding principles were proposed:

How we teach:

- Create welcoming, accessible learning environments.
- Promote understanding of how knowledge and personal experiences are shaped by historical, cultural, social, political, and economic contexts.
- Work collaboratively to construct knowledge.
- Understand that learning is a complex process that involves many layers of reflection.
- Identify what skills must be developed in order to achieve mastery without excluding students on the basis of nonessential skills.
- Integrate skill development (e.g., critical thinking, problem solving, and written and oral communication) with the acquisition of content knowledge.
- Establish and communicate clear expectations in terms of (a) learning objectives, (b) engagement in the teaching and learning process, and (c) evaluation measures for teaching and learning.
- Use teaching methods that consider diverse learning styles, abilities, ways of knowing, and previous experience and background knowledge.

What we teach

- Determine what content mastery is essential for each course and for the program or curriculum as a whole.
- Establish course objectives that reflect essential course components and do not exclude students on the basis of gaps in prior knowledge.
- Meet or exceed professional standards for excellence in content mastery within an environment of inclusion.
- Integrate multicultural perspectives within course content.
- Relate course content to historical trends, current events, and future directions.
- Consider global perspectives.

How we support learning

- Maintain the delicate balance between challenge and support.
- Support students outside, as well as within, the classroom.
- Support growth in skill development, as well as content knowledge acquisition.
- Address both cognitive and affective aspects of learning.
- Respond to students' needs related to day-to-day living.

How we assess learning

- Develop multiple ways for students to demonstrate knowledge.

- Encourage use of creative and critical thinking and problem-solving skills.
- Establish a clear link between course or program objectives and the content knowledge and skill acquisition being assessed.
- Ensure the absence of bias in the assessment of student learning.
- Use both formative and summative assessment measures.
- Impose time limits only when relevant to the task or needed as scaffolding for future assessments (e.g., providing timed tests as preparation for standardized credentialing exams). [29] (pp. 2–6).

Thus, IMID provided a much more nuanced approach to inclusive pedagogy and required educators to think more deeply about course content and instructional strategies while considering students multiple social identities. Although within the context of a journal article it would be impossible to provide specific examples of how each of the IMID guiding principles can be applied to ensure access and success for students who identify as LGBTQ+, Sections 5–10 of this paper attempt to highlight a few specific strategies. However, prior to exploring these applications, first it is necessary to address how our own attitudes and beliefs can create insurmountable obstacles for some students.

4. Attitudinal Barriers

Attitudinal barriers—whether constructed by the institution or individual faculty, staff, or students—can be the most significant obstacle LGBTQ+ students may face. In some cases, college campuses can be a safe haven for some LGBTQ+ students, as well as persons with disabilities [33]. Attitudinal barriers exist for both persons who identify as persons with disabilities and the LGBTQ+ community [34–37]. In some situations, there is also a division regarding attitudes based on the type of disability. Just as people with physical disabilities have been confronted with better attitudes than individuals who identified with having learning disabilities and/or mental illness [36,38], there may be varying levels of comfort and experience with persons who identify as sexual orientation minorities or gender minorities or any combination thereof.

Colleges and universities are encouraged to hire faculty and staff from diverse backgrounds to promote a campus culture that supports diversity. However, diversity is only part of the equation. Verna Myers once said, "diversity is being invited to the party; inclusion is being asked to dance" [39]. Thus, colleges and universities are also encouraged to hire individuals who have a spirit devoted to multiculturalism and social justice and demonstrate those values in practice through inclusive behaviors—people who will ask others to dance. It is the combination of values and actions that can lead to an environment that most advantageously works to expand the practices of UD, UID, and IMID to go beyond the bounds of being inclusive of persons with disabilities.

Studies demonstrate that employees of colleges and universities may be more likely to be inclusive of persons with disabilities if they have prior experience with persons with disabilities and/or training [40–42]. One can expand this notion also to consider working the LGBTQ+ population. Some of the barriers that people erect are due to lack of experience or ease around members of the LGBTQ+ community [43]. Safe-zone or ally training exists as an opportunity for education regarding LGBTQ+ students and inclusive practices. The Campus Pride Index [44] cited the importance of safe-zone training to demonstrate to students a level of acceptance and appreciation for all aspects of their identities. Often after this training, pins, magnets, and other paraphernalia can be collected to display to the community that a person has successfully completed ally training [44]. Colleges and universities are encouraged to strengthen inclusion by expanding UD, UID, and IMID practices through providing training related to multiple historically marginalized populations including those with disabilities and persons who identify as LGBTQ+ to remove attitudinal barriers due to ignorance or lack of experience [36].

5. Design and Allocation of Physical Spaces

Universal design was initially created by architects with the concepts of physical spaces and structures in mind. As educators, architects, and designers continue to imagine new spaces and reimagine old ones, they are encouraged to consider expanding their internal concept of accessibility and universal design to go beyond the bounds of including persons with disabilities. In doing so, it is important to mention that there are numerous factors that may affect the capacity of institutions, and particularly public institutions, to design for all students. One of the primary factors is governmental influence. The passage of the Americans with Disabilities Act (ADA) of 1990 guaranteed persons with disabilities accommodations [45]. While accommodations without use of UD and UID can remain minimalist and often require students with hidden disabilities to out themselves (i.e., to disclose their disability), the ADA made the creation of UD a possibility and later a reality. Meanwhile, in the US and elsewhere, laws regarding equity and access for people who self-identify as LGBTQ+ have been inconsistent, nonexistent, or worse (e.g., laws defining homosexuality as criminal behavior). For transgender members of college and university communities, there has been a perpetual state of inconsistency regarding statutes and case law to ensure their inclusion. In May 2016, the US Departments of Justice and Education dispatched the *Dear Colleague Letter on Transgender Students* [46]. This first dear colleague letter extended Title IX of the Education Amendments of 1972 to include transgender persons under the protection of sex and gender discrimination, guaranteeing students that institutions consider a new model when it comes to access. However, this letter's groundbreaking message was withdrawn nine months later under the banner of a new presidential administration [47]. In addition to inconsistency at the federal level in the US, there also has been a lack of continuity at the state and local levels. In March 2016, numerous members of the LGBTQ+ community and their allies cringed across the country as North Carolina's (NC) legislators passed and Governor McCrory signed House Bill 2 (HB2) into effect. HB2 required individuals to use the restroom marked as their sex assigned at birth [48]. A year later in March 2017, Governor Roy Cooper of NC signed a compromise bill that stated that local governments could not make changes to local ordinances until 2020 [49]. As these laws can impact the ability of members of our college and university communities to use single-sex restrooms, administrators are encouraged to facilitate additional creation of all-gender, single-stall restrooms or gender- inclusive, multi-stall restrooms. This may not be an ideal solution for persons who identify as transmen or transwomen who have not had completed a medical sex change; however, it provides them an opportunity to use a restroom not associated with their sex assigned at birth. It also accommodates individuals who present with androgynous gender expressions, which can be more common among the LGBTQ+ community. Educators are encouraged to exercise their rights to contact their government representatives to discuss concerns regarding equitable access to restroom facilities. In continuing the promotion of equal access, we provide all students the opportunity to feel a sense of safety and security in using facilities for which they all have access.

In addition to restrooms, inclusive locker rooms are also an issue related to inclusion of the LGBTQ+ community. Recreation facilities and activities can be an important part of the postsecondary educational experience; participation can improve students' health, foster growth in self-confidence, allow for socialization, and minimize stress [50–52]. Meanwhile, according to Eagan et al. [53], first-year transgender students self-reported lower levels of self-confidence and physical health. To ensure equal access to recreational activities, institutions need to provide inclusive locker rooms. Unfortunately, in a recent study in the US, only 44% of responding institutions reported having gender-inclusive locker rooms [54]. To exercise principals of UD, institutions should consider locker rooms that can be used by all persons, including single-stall changing rooms and showers.

Housing is also an area of concern from a structural perspective for students of the LGBTQ+ community. Historically, several of the residence life processes and procedures have been exclusive regarding students of the LGBTQ+ community, with binary gender-marked restrooms and single-sex floors and residence halls [55]. While several institutions may designate certain spaces for the LGBTQ+ community and/or allies, students who identify as LGBTQ+ may wish to live in other parts of

campus. This might especially be true for graduate students who prefer to live on campus, as it is possible that the LGBTQ+ community is composed of predominantly undergraduate students. Some opportunities that exist for residence life staff are to include on their applications questions regarding sexual orientation, gender identity, and preferences of the gender identity of their roommates. This is easier for apartment-style and single-room residence halls, which are also preferred by members of the transgender community [55,56]. Additionally, residence life staff can ponder providing more diversity and inclusion-focused programming that is inclusive of persons from all backgrounds, as well as making information about gender-inclusive housing more readily accessible [57–60].

There are some older buildings on college and university campuses that face some of the same challenges for addressing gender identity and expression inclusion as they did and/or do face regarding accessibility for persons with disabilities. While in the past few decades there has been a growing emphasis in the US on making all historic landmark properties accessible to persons with disabilities, these measures can be costly and valued at a lower priority than new construction and are often questioned by people who seek to preserve buildings' historic integrity [61,62]. Many of these buildings were designed with sex-specified restrooms, locker rooms, and/or living facilities such as residence halls with community bathrooms. The same efforts to accommodate people with disabilities could be designed to be gender- and sex-inclusive as well.

Meanwhile, these barriers do not impede colleges and universities from making every effort to create more inclusive amenities in new construction and existing single-user spaces, as well as developing more apartment-style housing [63]. Many current single-stall restrooms are already accessible to persons with disabilities [63] and could be made gender inclusive, as well by adding signage for "all-gender restroom" in addition to disability signage or simply removing gender-specific labels [64]. In situations where gender-neutral restrooms already exist but are inaccessible to persons with disabilities, colleges and universities are encouraged to create opportunities for students who identify as both persons with disabilities and transgender.

6. Learning Experiences and the Role of Faculty

Numerous studies have established the relationship between learning experiences and interactions with faculty members and perceptions of campus climate among LGBTQ+ students [13,65,66]. When faculty encourage their participation and demonstrate that they value their contributions, LGBTQ+ students are more likely to have favorable perceptions of their learning environments. On the other hand, Rankin, Weber, and Garvey [67] found that faculty have a negative impact on learning and perceptions of institutional climate among LGBTQ+ students when they discourage discourse on issues related to gender identity and sexual orientation in the classroom and fail to validate the voices and lived experiences of LGBTQ+ students or expect a single token student to represent all LGBTQ+ students.

The first guidelines of both UID and IMID focus on welcoming learning environments [21,29–31]. One way to demonstrate respect for students' identities and privacy is to provide a form to be completed and returned via email on which students can provide necessary information, if desired. Open ended-items on the form might include the following:

- Do you prefer to be called by an alternative name or nickname (i.e., different from what appears on the class roster)? If so, please provide. (This question can address multiple issues without implying any assumptions about gender identity, while also providing the opportunity for students who are transgender to use their preferred name before completing the process for a legal name change.)
- What gender pronouns do you prefer? Do you have different preferences depending upon whether in a private (e.g., during an office appointment or confidential written communication) or public (e.g., in class) setting? (Some students may be "out" to some of their teachers, but not to their peers, or may have different preferences for a letter of reference or any document that might be made available to wider audiences or the public.)

- Do you have a disability that might affect your performance in this course? Are you aware of any other potential personal (e.g., family commitments), medical (e.g., side effects of prescribed medications), or institutional barriers to achievement in this course that you would like to share with me? What can I do to assist in ensuring your success? (This question can open many doors and demonstrate the faculty member's interest in the individual without requiring students to disclose specifics.)
- Do you anticipate any absences that are considered excused according to this institution's policies and procedures (e.g., for religious observance or to represent the institution in athletic endeavours or other competitions or meetings)?
- Do you have any other concerns you wish to bring to my attention? If you would prefer to meet with me in person, please schedule an appointment via my electronic calendar. The details of all appointments (including your name) are not visible to others accessing my calendar.

Syllabus statements [68] can also communicate faculty members' interest in fostering student success. Some institutions have prepared statements regarding such topics as student conduct, sexual harassment, disability accommodations, mental health and suicide prevention, and support services, which are to be included on all syllabi, while other schools leave the contents of syllabi to the individual instructors. Regardless, faculty can develop their own messages to share their commitment to social justice and to providing learning environments that are welcoming to all. Some faculty also include guidelines for respectful in-class and online discussions. However, it can be more powerful to engage students in constructing a list of class "rules", which can then be distributed as a reminder the next time the class meets and posts on the course website. When students contribute to developing their own standards for behavior, they are also more likely to take responsibility for abiding by the rules and encouraging their peers to do likewise. What is critical is that faculty create safe learning spaces in which all students can share their identities and ideas without fear of reprisal. It is also important to note that safe spaces refer to virtual, as well as physical, spaces, and that the same guidelines apply to online communication as well.

UID encourages faculty-student contact, while IMID suggests that faculty support students both within and outside the classroom. The importance of providing opportunities for faculty-student contact outside the classroom has been established over decades of research [69–74]. However, for faculty-student interactions to have a positive impact for students who are LGBTQ+, faculty must have examined their own values and attitudes and be knowledgeable about the current literature and comfortable discussing issues related to gender identity and sexual orientation. Professional development activities may be a prerequisite for successful interactions.

Among "high-impact practices" [74] in which faculty members play a key role are opportunities to conduct research under a faculty member's supervision, mentoring activities, and capstone projects. These in-depth interactions can be crucial in validating student experiences and creating a sense of belonging while also preparing students for graduate school or the world of work. However, less formal short-term interactions between faculty and students can also be significant. Since the advent of email, the use of office hours has diminished unless required, and students and faculty are less likely to communicate in person outside the classroom or by phone. One way to ensure more informal contact with all students is to require a "getting acquainted" appointment at the beginning of the term. For large lecture courses, this can be accomplished in small-group meetings if individual appointments are not feasible. Throughout the term, faculty are encouraged to remind students that they are available to meet outside of class. In a national study, Woodford and Kulick [75] found that interaction with faculty was positively related to academic and social integration among sexual minority students. Silverschanz, Cortina, Konik, and Magley [76] linked faculty-student interactions to academic engagement and social acceptance for LGBTQ+ students.

According to Vaccaro's [77] research, LGBT students considered supportive faculty members to be the most positive aspect of their undergraduate experience. Meanwhile, Garvey, BrckaLorenz, Latopolski, and Hurtado [78] noted the potential adverse impact of negative interactions with faculty,

asserting that LGBQ students may choose to leave the institution if faculty do not create learning environments that are inclusive for students of all sexual orientations. They wrote, "Faculty members have a unique influence on students' classroom perceptions and academic experiences. LGBQ students' experience in the classroom largely governs perceptions of the overall academic experience; therefore, it is critical that scholars examine the relationships between faculty and LGBQ students and the relationship with academic success" [78] (p. 212).

7. Student Development Programs and Services and Learning Support

Student development programming can be an essential component to holistic student development during the tenure of postsecondary students. It is crucial in these functions that the individuals responsible for these programs promote inclusion. A suitable way to do that is to incorporate universal design and universal instructional design principles as they relate to all students, including persons with disabilities and members of the LGBTQ+ community. Beyond some of the areas discussed during the attitudinal barriers section of this article as relates to training, there are other opportunities available to professionals to ensure inclusion. This starts with marketing materials that are accessible to everyone and inclusive. For those who have experience with UD and UID, creating materials that are screen-reader accessible is not new; but to be inclusive of everyone, gender neutral pronouns should be included whenever third-person singular pronouns are used (instead of he/she or s/he using she/he/they). If there are pictures, one might consider including pictures that showcase persons with visible disabilities and persons of androgynous gender expression. On more granular levels, one might consider individual offices and how they operate; in the following paragraphs, we will discuss advising, career services, and academic support.

According to Habley [79], advising is a singular situation that consists of consistent, longitudinal, one-on-one meetings with students on campus. For some students, the interactions with their advisors may be the only time in which they have one-on-one meetings with employees at their college or university. Therefore, advising offices would do well to learn about a wide variety of identities and how those lenses frame students' experiences in college and how they may affect student persistence, retention, and graduation. Advisors might also consider familiarizing themselves with social justice champions among their campus colleague, so that they can direct their students into other safe spaces and classrooms.

As almost 85% of students enter postsecondary education for career purposes, it is vital that career services departments be prepared to support LGBTQ+ students' needs in attaining employment [53]. Career services professionals can provide guidance to students about career exploration. They can have discussions and work with corporate partners on teaching students how best to navigate systems and how/when to disclose hidden identities, including disability, sexual orientation, and gender identity. Departments of career services would also be well-advised to be intentional in the organizations they recruit to attend career fairs, particularly organizations that have good reputations of inclusive environments for all people. From an LGBTQ+ perspective, professionals can look to The Human Rights Campaign Corporate Equality Index [80] and other resources to identify companies that have policies that are inclusive and environments that make employees feel welcome. In addition, as career services professionals present workshops on topics such as appropriate business attire for different situations, they should incorporate UID to include the LGBTQ+ community by discussing androgynous gender expression clothing in addition to men's and women's fashions.

There are also opportunities to expand principals of UD, UID, and IMID to the LGBTQ+ community in academic support service capacities. One should be intentional about including examples that represent a multitude of identities in tutoring and Supplemental Instruction lessons. At any time, starting with introductions to new students, academic support personnel can introduce themselves by stating their name and sharing their personal pronouns; this concept can be applied in any setting and have similar effects. This immediately signals to students, especially those of the LGBTQ+ community, that the staff member promotes diversity and inclusion. If individuals

are providing coaching that includes discussing personal relationships, they should always use the verbiage "significant other" or "partner"; this helps avoid the use of heteronormative and cisnormative assumptions and microaggressions.

8. Health and Wellness Services

One area that is particularly unique for members of the LGBTQ+ community is health and wellness services. Much of the health world relates to the purely biological and diagnosable aspects of patients. All healthcare professionals, but especially those on college campuses, are encouraged to learn about and consider social identities in addition to biological and medical identities. This can start with health forms; many health forms require patients to identify as "male" or "female". Student health offices are encouraged to provide questions that extend beyond this binary approach to include sex identity, gender identity, and sexual orientation in order to best serve patients in regard to every aspect of health, but especially sexual health and mental health. It is also in their best interest to remain current with the activities of The World Professional Association for Transgender Health [81]. Finally, health services are encouraged to hire at least one professional who can confidently write referral letters for hormone initiation. These professionals can help in preventing students from dangerously using "do-it-yourself" hormone replacement therapy (DIY HRT). Rotondi et. al [82] conducted a study in which approximately one fourth of participants who were using HRT had obtained the drugs from "non-medical sources". This is a significant issue, as DIY HRT increases the likelihood of health problems due to a lack of monitoring and subsequently improper dosing [82–84].

Counselling offices also need to provide appropriate services for students who identify as LGBTQ+. It goes without saying that all counsellors should exhibit Rogers' [85] unconditional positive regard and should have a certain level of diversity and cultural humility training. However, counselling offices could also benefit by having individuals who specialize in counselling clients who identify as LGBTQ+, as they experience the world differently than their cisgender and/or heterosexual counterparts. Members of the LGBTQ+ community have a constant choice of being "in" or "out" of the social identity closet. Any time they come out, they face the possibility of rejection from family members, friends, and their communities. This is also an area in which counsellors are encouraged to be mindful of intersecting identities with sexual orientation and gender identity, as well as nationality, race, religion, and disability. For example, students who identify as LGBTQ+ often have a unique experience with social media; it can be a source for strength and acceptance, as well as a portal for hate and victimization [86]. Additionally, members of the LGBTQ+ community can experience higher levels of mental health concerns, as well as suicidal ideations and alcohol and drug abuse [87–91].

9. Extracurricular Activities

Student organizations and programming can be an important component of the college experience for many students. It is imperative that these organizations receive training on how to make student organizations inclusive. Swan [92] specifically noted that Greek Life and athletics need to work toward inclusion for LGBTQ+ students. *Wikipedia* [93] also has a list of LGBT and LGBT-friendly fraternities and sororities. Regardless, the verbiage fraternity and sororities is not inclusive, as the words ascribe to the gender-binary with the former being masculine and the latter feminine. Offices of Greek Life at various colleges and universities are encouraged to make use of the Lambda 10 National Greek Ally Network as an opportunity [94].

There exists a level of negativity regarding LGBTQ+ individuals among college athletics personnel and participants [95]. However, in some ways organizations have worked to try to minimize bias regarding sexual orientation and gender identity minorities in college athletics. The National Collegiate Athletic Association (NCAA) in fall of 2011 created a policy regarding transgender student-athletes [96]. Specifically, the policy permits transgender students to compete as long as they meet the standards regarding hormone replacement therapy as outlined by the NCAA [97]. While this policy still excludes individuals who identify as trans+ who may prefer not to use hormones, it is a step in the right direction.

Campus Pride Index has also taken steps to start to include awareness for LGBTQ+ student-athletes and their safety by starting a Campus Pride Sports Index [98]. To promote inclusion at principles of UD and UID, athletic directors, administrators, and coaches should work cohesively to create anti-harassment policies that include all individuals including members of the LGBTQ+ community and anti-LGBTQ+ derogatory language [95]. Finally, with collegiate athletics being team-based, likely one of the strongest interventions is going to come from individual players who are well-respected [95]. Coaches may want to consider the inclusive nature of players when selecting team captains and potentially requiring diversity and inclusion training of those captains. Coaches may also want to consider team-building activities early in the year that focus on diversity and inclusion such as "Crossing to the Line" [99], for which facilitators can use a host of statements to acknowledge members of various minority groups.

In addition to Greek Life and athletics, there are numerous other opportunities for student organizations and programming boards to implement UD and UID principles to be inclusive of the LGBTQ+ community. In their charters, they can elect to have inclusivity statements that include sexual orientation and gender identity. They can partner on events with established organizations whose primary focus is to support LGBTQ+ individuals. They can host events focused on the LGBTQ+ community during LGBT History Month in October. Executive board (e.g., president, vice president, secretary, and treasurer) members can participate in "Safe Zone" or ally training [44] to gain knowledge and intention regarding inclusivity of LGBTQ+ individuals. These are just a few possibilities. Advisors and executive board members can also reach out to their student organizations that support the LGBTQ+ and offices that support diversity, inclusion, and multiculturalism for more institution-specific suggestions.

10. Research Involving Human Subjects

Sexual orientation is rarely included as a demographic variable in quantitative studies of postsecondary students and their educational experiences or in national higher education data sets [100]. Meanwhile, gender is usually presented as a binary construct (i.e., female or male). Before choosing to include sex or gender as variables, researchers must consider their purpose and whether either one or both of these variables will contribute to understanding groups of students. For example, when studying the physical or mental health of postsecondary students, there may be circumstances in which scholars seek information about both gender identity and sexual orientation when simply asking whether a student is male or female would be of little use. Similarly, if conducting research on the relationship between play and the acquisition of academic skills like spatial visualization, it may be necessary to ask about the nature of students' childhood activities rather than drawing any conclusions based on biological sex, gender identity, or sexual orientation; in many countries, play no longer reflects traditional gender roles.

Whether referring to sexual orientation or gender identity, scholars are encouraged to recognize the fluidity of these constructs and to ask open-ended questions so that students can use the terms they prefer to identify themselves. It is likely that for smaller samples, identity groups will need to be aggregated for statistical purposes, but researchers will be able to provide terms to label each group based upon students' own descriptions of their identity status. Garvey [100] urged that after collapsing categories, researchers test for within-group differences before drawing conclusions about outcomes across a group that represents multiple identities. For qualitative studies that will report responses from individual students, it is also imperative to ask students what pronouns they prefer and report those preferences and use them when referring to the students individually. These practices will provide richer results and also foster greater understanding about historically marginalized students.

When writing for publication, scholars can avoid appearing to make heterosexist assumptions by using plural construction and pronouns whenever possible. Writers should also take care to refrain from using language that tends to describe and define students according to a single aspect of their identities.

11. Microaggressions

Even educators who are comfortable embedding multicultural perspectives in their teaching and prompt students to share their unique viewpoints may be unaware of some of the less obvious ways in which LGBTQ+ students may be excluded from full participation or given the impression that their voices are not valued. Heterosexism, cisgenderism, and negative attitudes toward people who are LGBTQ+ are frequently expressed through microaggressions. Pierce [101,102] coined the term *microaggression* to describe slights and insults aimed at African Americans, but the use of the term is now used more broadly in regard to any minoritized group. Microaggressions are often subtle, which can make them even more pernicious, because it is difficult to respond to them without being accused of being overly sensitive. Over time, their cumulative effect can be more deleterious than a single act of blatant discrimination. Thus, it is imperative that educators be aware of microaggressions and address incidents witnessed both within and outside formal educational settings.

Sue [103] created a typology of microaggressions. He used the term *micro-assaults* to refer to overt, intentionally hurtful language or actions. Example might include "cat calls"; name calling (e.g., referring to someone as a "fag," "dyke," "tranny" or "pansy"); or mimicking and exaggerating a gesture (e.g., "the limp wrist"). *Micro-insults* may be more covert, including the use of sarcasm or nonverbal cues such as rolling the eyes. They are no less harmful just because they may be a reflection of insensitivity rather than an intentional insult. Another more subtle form of microaggression is the *micro-invalidation*, which ignores a person's claimed identity or negates a person's thoughts, feelings, beliefs, or lived experiences (e.g., "It's just a phase; you'll outgrow it").

Woodford, Weber, et al. [104] differentiated between environmental and interpersonal microaggressions in their study of depression and attempted suicide among students who are LGBTQ+. Interpersonal microaggressions occur during human interactions (e.g., in conversation or group discussion), while environmental microaggressions can be expressed through institutional policies and practices (e.g., the absence of nongendered restrooms). Woodford, Weber, et al. [104] found that interpersonal microaggressions served as a risk factor for some identity groups but could be mitigated by resilience and LGBTQ+ pride. Woodford, Chonody, et al. [105] have developed and validated a scale for exploring microagressions against college students who are LGBQ.

We believe that one of our roles as educators is to assist students in understanding how their words and deeds impact others. We cannot sit idly by and observe without acting. Too often students who have been minoritized on the basis of their social identities are told that it is their responsibility to educate their peers; instead, they should be able to focus on their own learning. We have developed the following scenarios, which are based on students' personal experiences, to be used in both the classroom and for purposes of professional development. Additional scenarios are provided in the *Safe Zone Training and Facilitator Guide* [7].

12. Scenarios

Consider possible responses by participants and observers to the following situations, which are based on the lived experiences of students, faculty, and staff. (Unfortunately, the language used in these scenarios is not atypical.)

Design and Allocation of Physical Spaces:

- Ashley identifies as non-gender-neutral and prefers the pronouns ze/zir/zirs. Ze has class in a beautiful, historical building that has been recognized as a national heritage site. During a break, ze asks for the location of the restroom and is told that men's restrooms are on odd-numbered floors and women's restrooms are on even-numbered floors.

Learning Experiences and the Role of Faculty:

- On the first day of her first-year experience class with mandatory attendance, Lori raises her hand during the teacher's explanation of the syllabus and states, "I cannot come to class on the day with the guest speaker from the 'gay' office. My religion says that homosexuality is evil in the eye of God".
- During a discussion on sexuality in a Psychology of Adolescence course, Sam turns to Zhou and says, "You're a 'dyke,' right? I just don't get the whole 'Lesbo' thing. Why don't you explain it to us?"
- The faculty member tells the class to break up into small groups of 5 or 6 students. Sandy, who is currently going through hormone replacement therapy, is turned away by each group he approaches.
- Jordan, an education student who identifies as Black and gender-nonconforming, shares with their academic coach that they are upset because they got the following question wrong on an exam: "A study has the research question 'Do men like action movies more than women?' True or false: The potential gender variables are male and female". Jordan answered false.

Student Development Programs and Services and Learning Support:

- Jose, a sophomore student who identifies as a Latino cisgender man, shares with his adviser that he identifies as gay and he recently came out to his parents. Jose also shares that he grew up in a rather strict Catholic household. He states that his mother expressed concern, and his father has not spoken with him since. He is not doing well academically, because he feels cut off from his family, and he is concerned about going home for the semester break.
- As students are beginning to move into their residence halls at the beginning of the academic year, Terry storms into the resident adviser's room and says, "I can't live with that person! I don't even know if 'it' is a girl or guy!"

Health and Wellness Services:

- Pooja goes to student health services on campus for a pap smear. After completing the pap smear, the doctor asks if she is sexually active. Justine has a girlfriend with whom she has a sexual relationship, so she responds "yes". The doctor then asks if she needs a birth control prescription. She responds, "no". The doctor then asks Justine if she is trying to get pregnant. Justine replies "no". The doctor replies, "while condoms are a suitable form of birth control, you may wish to consider additional protection in addition to condoms".
- Two counselors from the counseling center run a LGBTQ+ support group. Khalid is newer to the group, and during a group session, comes out that he identifies as bisexual, immediately after which one of the other group participants responded, "you're either just experimenting or you're transitioning. There is no such thing as a bisexual".

Extracurricular Activities:

- Jason plays second base on the university baseball team. Last week in the locker room, one player called another player a "fag". Jason's little brother shared with him a few weeks ago that he is gay. He asks his coach what he can do to overcome his own biases and to confront members of his team when they use derogatory language.
- Sonya is excited to be serving on the University-wide Homecoming Committee, which includes students, administrators, faculty, student center staff, and alums. She asks about the allocation of non-gendered restrooms in the major venues, including the football stadium, noting that they could serve multiple purposes as accessible and family-friendly as well. A major donor responds, "I am not really sure what you are talking about, but why would we need something like that? There are very few of 'those people' who have anything to do with this institution, and we do

not want to encourage their participation. They may make other people uncomfortable, and we would not want that".

Professional and Social Interactions:

- Li identifies as a heterosexual male. He enjoys wearing pastel and bright colors and gender-nonconforming clothing styles that are representative of his cultural heritage. Before going out one night, some of his friends ask him to change to jeans and a "masculine-colored" shirt, saying, "We don't want everyone to think that we're Queer".
- Lakeshia, who identifies as a woman, bisexual, and multiracial, is very excited about being the first student in her Ph.D. cohort to be offered an assistant professorship until she overhears a classmate say, "Yeah, who wouldn't hire her—she's a diversity trifecta!"
- Six months later: Lakeshia loves her new position, has been pleased that her students are accepting of her social identities, and believes she can make a difference as a role model, ally, and resource. However, every time she tries to reach out to colleagues to get together outside work, even to go out for lunch, they always seem to have an excuse to avoid spending time with her.
- At an awards presentation, a vice president performs an introduction using she/her/hers pronouns for a faculty member whose pronouns are they/them/theirs.

Although some of these scenarios may seem far-fetched, incidents like these do happen. What is important is how we respond to them. Microaggressions, whether intentional or not, cannot be withdrawn, but they can be "teachable moments" that enlighten us and facilitate the creation of a more welcoming campus climate for all.

13. Recommendations and Conclusions

The concepts of universal design and universal instructional design were born with the idea of persons with disability in mind. As time has gone on, educators have begun to consider that these principles can be expanded to include additional populations. The purpose of this article was to expand on how college and university communities could apply these principals when considering members of the LGBTQ+ community. Just as educators must consider how to utilize UD and UID to provide multiple modalities for students with disabilities to access knowledge, resources, and activities, they must likewise consider intersecting and interdependent identities when considering implementation of principles of UD and UID to enhance inclusion for members of LGBTQ+ community. We have several recommendations, beginning with the implementation of integrated multicultural instructional design guiding principles and consideration of the ways in which educators and learners both participate in the learning process. Educators must also consider the attitudinal barriers they and their colleagues create and seek opportunities for knowledge acquisition, experience, and personal and professional development. Access to facilities is one of the most basic but also one of the most crucial areas on which administrators need to focus. In doing so, educators must consider older buildings and new construction, promoting the development of all people to satisfy the basic needs and dignities of the LGBTQ+ community. Faculty must consider their role in these processes and how they relate to students from their syllabus to their activities in class. Student development and academic support personnel must also consider how they can make their environments, marketing materials, and programming more inclusive. Health and wellness professionals on-campus are encouraged to be intentional with forms, services available, and diagnoses and to participate in specialized training to best be inclusive of students who identify as LGBTQ+. Professionals, advisors, and mentors who support extracurricular activities, especially Greek Life and Athletics, are encouraged to promote inclusive policies and opportunities to support members of the LGBTQ+ community through activities such as team-building exercises.

As one may note, much of this article focuses on students; however, in a couple of the scenarios we discussed faculty members and administrators as well. Implementation of UD and UID impacts everyone. Therefore, we hope that as individuals intentionally take new steps towards including

LGBTQ+ students, they apply the same UD and UID principles focused on LGBTQ+ people to all their constituents.

Throughout this article, we have referred to people who identify as lesbian, gay, bisexual, transgender, queer, and more as members of a community, and that is what first and foremost they need: community. Community includes people around whom and spaces wherein people who are LGBTQ+ can feel safe and accepted for all of their identities. The same way that every member of a college community is responsible for the recruitment, retention, and graduation of students, they are also responsible for inclusion and community-creating. This can be done in any number of ways, from something as small as a faculty member including his/her/their personal pronouns in his/her/their signature line under the name to the creation of an LGBTQ+ Center in a central part of campus. Harvey Milk once said, "all young people, regardless of sexual orientation or identity, deserve a safe and supportive environment in which to achieve their full potential" [106]. We encourage educators to align with Harvey's sentiment to make that a reality for all persons who identify as LGBTQ+ in their college and university communities.

Although the focus of this article has been to explore how we might apply UD, UID, and IMID in creating more welcoming learning experiences for students who identify as LGBTQ+, our final recommendation is to extend our thinking beyond the "one-identity-at-a-time" approach and consider "the whole student". How can we become more observant, knowledgeable, and considerate of difference, so that we ensure that no student is excluded on the basis of any facet of identity? At the same time that we learn to embrace difference, how can we place more emphasis on our shared attributes, goals, values, and beliefs?

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Article

Extending Universal Design for Learning through Concurrent Enrollment: Algebra Teachers' Perspectives

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Abstract: Concurrent enrollment refers to partnerships between postsecondary institutions and schools through which secondary school students can complete a university class taught by a qualifying secondary school teacher at their secondary school. We propose that concurrent enrollment programs are an under-recognized tool for extending the impact of Universal Design for Learning (UDL). The context of our study is an equity-focused university course in algebraic mathematical modeling that is also offered through concurrent enrollment in over 30 secondary schools to over 800 secondary students annually in our state of Minnesota, U.S.A. This paper presents a qualitative analysis of secondary school teachers' experiences implementing the inquiry pedagogy and the equity goals of the course. Several results are important for UDL. Teachers (1) describe equity in social terms of race, ethnicity, income, immigration, and language status in addition to measures of academic success; (2) perceive improvements in students' attitudes towards mathematics, school, and university education; (3) perceive student academic growth through mathematical writing; and (4) report close relationships with students. If higher education faculty design their on-campus classes to incorporate UDL principles, concurrent enrollment offers the potential to improve inclusive pathways from secondary schools to universities.

Keywords: Undergraduate mathematics; mathematical modeling; inquiry learning; equity; access to higher education; universal design for learning; universal instructional design

1. Introduction

In the United States and Canada, students and their families increasingly rely on programs that allow secondary school students to complete university classes before the student graduates from secondary school [1]. These dual enrollment or concurrent enrollment programs allow the secondary student to enroll in a university course that is taught at their secondary school by a secondary school teacher who receives substantial, ongoing university training. In global perspective, this blurring of boundaries of secondary and postsecondary education does not seem to be widespread, but it is commonplace in North America. By 2011 in the United States, 82% of public secondary schools offered at least one of several types of concurrent enrollment options, and 2.04 million students participated compared to 1.16 million students in 2003 [2]. Our local program, known as College in the Schools (CIS), allows public school students to earn university credit that is free to them (In the U.S., the terms "college" and "university" are used interchangeably). The secondary school pays a nominal fee per student registration to the sponsoring postsecondary institution. The secondary school teacher does not receive additional compensation for teaching the university class. For students and families, the opportunity to reduce the cost of higher education, gain experience with advanced academic

expectations, and shorten completion time for a postsecondary degree are all strong motivations to participate in concurrent enrollment programs.

Traditionally, most concurrent enrollment courses in North America have been offered to the highest performing students in secondary schools, but over the last fifteen years some programs have committed themselves to increasing the participation of students who are underrepresented in higher education [3]. In 2009, our own university launched several equity-focused concurrent enrollment courses through the Entry-Point Project [4]. Secondary teachers for the Entry-Point Project are asked to reserve at least 60% of the seats in their classroom for students who are racially or ethnically underrepresented in higher education, of low to moderate income, first in their families to attend university ("first generation" students), English Language Learners (ELLs), members of immigrant families, or in the "academic middle", the top 50th–80th percentile of their secondary school class rank. The program criteria refer to any combination of these social identities of students and of their academic performance at the secondary schools.

Principles of Universal Design for Learning (UDL) are the core of the Entry-Point concurrent enrollment program. Its university courses must incorporate elements of UDL course design, including [4] (pp. 120–121):

1. Integrating skill-building (e.g., critical thinking, problem-solving, written and verbal communication) with the acquisition of content knowledge
2. Communicating clear expectations and providing constructive feedback
3. Promoting interaction among and between teachers and students;
4. Using teaching methods that consider diverse learning styles, abilities, ways of knowing, previous experience, and background knowledge
5. Articulating a commitment to diversity and integrating multicultural perspectives into all aspects of the learning process.

Currently, six courses are offered through this program: algebra, physics, writing, family sociology, and two courses that explore teaching as a profession. Although many contemporary concurrent enrollment programs seek to improve access to higher education for underserved students, few align themselves explicitly with the principles of UDL that could strengthen this goal, perhaps because UDL principles are not widely articulated in early undergraduate classes in North America. Relatively little scholarship has explored the potential connections between the equity and access mission of many modern concurrent enrollment programs and UDL principles of course design [5,6].

In this paper, we report on secondary teachers' experiences teaching a university algebra concurrent enrollment course that uses a UDL-focused inquiry pedagogy. This mathematical modeling pedagogy encourages multiple ways of engaging mathematical scenarios and expressing solutions. The first author teaches the algebra course on the university campus and has served as the faculty coordinator for the concurrent enrollment algebra course offerings since 2009; the second author is a doctoral student who provides support for the concurrent enrollment algebra program.

The concurrent enrollment algebra course is complex to implement. Secondary teachers in widely differing communities across our state must juggle the Entry-Point criteria that reference race, class, language, income, and family history. They must learn to teach and grade inquiry-oriented mathematical assignments that are not typical in most secondary mathematics curricula. Many of the algebra assignments are set in "realistic" contexts that allow students to engage personal knowledge, but it is not clear that they are actually realistic to students in all communities.

To better understand how secondary teachers grapple with the complexities of delivering a concurrent enrollment algebra course that has core values of inclusivity, institutional pathway-building, and challenging, inquiry pedagogy, we conducted focus groups to investigate the research questions: (a) How do teachers understand the equity mission of the course at their school? and (b) How do teachers understand the association of the inquiry pedagogy and the equity mission of the course?

We use the results to comment on the final question: (c) How can teachers' experiences in an equity- and inquiry-oriented concurrent enrollment algebra class inform higher education faculty who wish to extend UDL through concurrent enrollment?

1.1. Concurrent Enrollment as Access Strategy

The scope of concurrent enrollment programs is determined by state-level legislation. State governments set eligibility criteria for the academic credentials that secondary students must possess and the types of post-secondary institutions that can offer concurrent enrollment classes [3]. For this reason, the categories of students who participate in concurrent enrollment and their outcomes vary substantially. Quantitative assessment of outcomes for concurrent enrollment can be challenging, as we have found in our own setting, due to limited articulation of school district, state, and national educational databases. Reviews of quantitative studies of concurrent enrollment show a variable, but generally positive outlook for using concurrent enrollment programs as a strategy to improve access and success in higher education for traditionally underrepresented groups of students [3,7,8].

At times, concurrent enrollment programs continue to support students who already enjoy broad pathways into university education [9]. For example, a study in Virginia found that White female students, who already have strong representation in universities, tended to be over-enrolled in concurrent enrollment courses relative to their portion of upper-level secondary school classes, while African-American, Latino, and Asian students were under-enrolled [10]. Analysis of enrollments in our University of Minnesota concurrent enrollment algebra class portray mixed success in program participation. We tend to over-enroll Latino, Southeast Asian, and Native American students and under-enroll White students compared to the school populations, which would be expected in a program with racial equity goals, but we also tend to under-enroll African-American students [11]. These data are limited because they do not account for the effect of small class sizes, low racial diversity in some schools, or for the possible enrollment of racially underrepresented students in higher-level mathematics classes in their secondary schools (which is a positive reason for under-enrollment in algebra).

On the other hand, in dual enrollment programs in Florida and New York, career and technical education students improved postsecondary education measures, such as second semester retention, earning credits toward a degree, and grade point average [12]. The authors found that students who have difficulty entering and persisting in postsecondary settings, especially males and low-income students, benefited from concurrent enrollment participation. A study in the University of Missouri system showed that concurrent enrollment experiences predicted retention into the second year at university, although it had no correlation with grade point average [13]. A critical review of several types of concurrent enrollment programs found that the strongest positive effects are the tendency to enroll in a postsecondary program, accumulate postsecondary credits, and complete a postsecondary degree [8].

Karp [14] suggests that concurrent enrollment student gains are due to *anticipatory socialization*—learning about a new role through discussion or observation—into the expectations of higher learning and to *role rehearsal*—temporary, direct enactment of the roles. Acosta [7] extends this idea for first generation college students, arguing that dual enrollment programs should intentionally incorporate support services around these experiences and should build on first generation students' typical strengths of resilience, pride, and loyalty to family and community.

1.2. UDL Framework for Concurrent Enrollment

UDL research has produced a very rich set of recommendations for inclusive education, especially in the areas of course design and interactional features of classrooms. Somewhat less attention has been paid to the ways students move through educational structures in postsecondary settings, though some important work reports on learners' experiences with advising, counseling services, residential life, tutoring centers, and in administrative organization [15].

Katz' Three-Block Model of Universal Design for Learning is useful for analysis of inclusivity in concurrent enrollment programs because it attends to pedagogical design, the nature of teacher and student interaction, and educational systems and structures [16]. Block one of Katz' model involves attending to social and emotional aspects of students' classroom experiences. Students should improve their self-awareness and self-concept, and better understand the social identities and varied perspectives of their classmates. Block two, inclusive instructional practice, involves a range of inclusive practices at the level of course organization: group assignments, varied assignments with student choice, and an integrated curriculum. Block three on systems and structures attends primarily to developing administrative staff and policies that support educational inclusion. How students are supported, or not, as they navigate educational structures is a critical determinant of the inclusivity of their experience [15]. Because concurrent enrollment is a pathway across distinct educational systems, block three could easily be expanded to include it.

2. Concurrent Enrollment Context: College Algebra through Modeling

2.1. What Is Mathematical Modeling Pedagogy?

Mathematical modeling is a professional approach in applied mathematics in which an initial solution is improved systematically through multiple cycles of problem-solving [17]. In the U.K. and in Europe, mathematical modeling has been used as a teaching approach in secondary and early undergraduate mathematics classes since at least the 1980s, but has only begun to enter early undergraduate mathematics teaching in the U.S. over the last fifteen years [18]. Using the modelling perspective, students create mathematical methods for solving realistic problems instead of recreating a predetermined method that the teacher demonstrates.

The mathematical modeling course that is described in this paper covers algebraic topics including linear, quadratic, exponential, and logarithmic functions, and basic concepts in probability and counting. Courses that cover similar topics through a procedurally oriented pedagogy are among the most highly enrolled courses in the first year of undergraduate studies in the United States, in many settings, with a low rate of passing grades [19].

Our mathematical modeling assignments are based on mathematics education research perspectives on modeling [20,21] and are mostly derived from tasks developed through partnerships between teachers and mathematicians or education researchers [22,23]. Examples include how to design a public-rent-based bike-sharing program, planning to maximize profit in a historic hotel, describing the mathematics of games, or how to divide student athletes into "fair" teams based on their performance data.

Writing usually plays an important role in mathematical modeling pedagogy. In our course, students write about their mathematical solutions with reference to five stages of the modeling cycle (Figure 1). Students must define variables, state assumptions and outline other ways in which they "simplify" a realistic scenario. They must choose and reflect on the mathematical "representations" that they used in their approach, for example, whether graphs, equations, tables of values, or algorithms were most useful to them. Students "interpret" their results in terms of the original scenario and explain whether the results are reasonable. Finally, students must "extend" their original solution either by generalizing it or by posing a new, slightly more complex version of the original task and solving it mathematically.

2.2. Correspondences between Math Modeling Pedagogy and UDL

Mathematical modeling in educational settings has several correspondences with Universal Design for Learning. First, both fields have historical roots in understanding the educational experiences of students with learning disabilities. Lesh proposed mathematical modeling activities as a means to research and improve problem-solving approaches among students with learning disabilities and with "average abilities" in mathematics [24], but the approach also has been recognized

as an approach that can engage many learners [21]. Students often work in groups that must define key aspects of the task. As in UDL, mathematical modeling pedagogy allows students multiple points of entry to connect knowledge to academic work and encourages varied forms of assessment. Our concurrent enrollment algebra class also emphasizes teachers' growth in the use of questioning techniques rather than direct lecture [25,26].

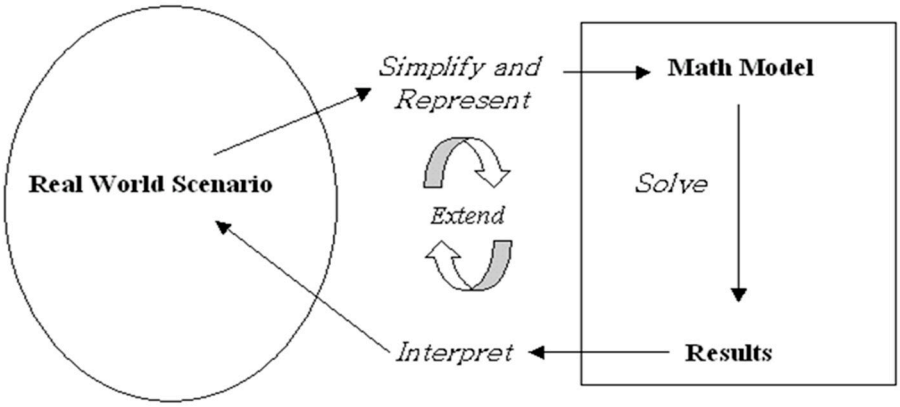

Figure 1. The mathematical modeling cycle. Adapted from [20] (p. 115), students write solutions in terms of the five stages of modeling for all major assignments in the concurrent enrollment algebra course.

All on-campus instructors and secondary school teachers are expected to incorporate accommodations from school and university special education systems. However, because the university course offering incorporates principles of UDL in multiple ways, the secondary school offerings must adopt inclusive teaching practices beyond the legal obligations of special education administration.

2.3. Concurrent Enrollment Features of the Algebra Course

At our university, the College in the Schools program organizes and provides administrative support for concurrent enrollment offerings across all disciplines. The CIS program manages partnerships between the faculty coordinator and her academic department on the one hand, and a secondary school teacher and her school administration on the other hand. The faculty coordinator (for the algebra class, this is the first author) leads professional development sessions three times per year for secondary teachers to ensure that their classes match the pedagogy and content of on-campus classes. The faculty coordinator and doctoral research assistant (the second author) also conduct site visits in the schools to ensure this equivalency. Professional development addresses topics including learning modeling pedagogy; learning question-based pedagogies; grading models and written work; and learning new modeling activities. The concurrent enrollment algebra course is currently offered in over 30 secondary schools statewide to over 800 secondary students annually.

The concurrent enrollment algebra class is offered in an academic setting that values teaching that is interdisciplinary, experimental, and civically engaged. On-campus instructors are encouraged to try new modeling activities in their classes, and so this opportunity to experiment with new assignments is open to secondary teachers as well, as long as the assignment is written in terms of the five stages of modeling (Figure 1) and supports mathematical learning of one of the required algebra topics.

3. Methods

3.1. Participants

In order to understand teachers' experiences delivering an equity-focused concurrent enrollment course, the second author conducted six semi-structured focus group interviews with 27 secondary mathematics teachers out of the 31 teachers who offered the concurrent enrollment algebra class in

their secondary schools that year. One teacher was African-American; the rest were White. Seventeen teachers were women; 10 were men. The focus groups took place during two days at the university campus when the concurrent enrollment teachers from across the state gather together for professional development training. The focus group size ranged from three to six teachers. Teachers were grouped together using our state government's demographic categories for their school's region, so that there were two focus groups for teachers in the Inner Metropolitan area surrounding our university campus; two focus groups for teachers in the Outer Metropolitan area; and two for teachers in rural parts of the state, the Greater Minnesota region. Because our university is sometimes perceived as prioritizing the interests of its surrounding metropolitan area, or as representing politically more liberal interests in comparison with the Outer Metropolitan and Greater Minnesota regions, we organized the focus groups in this way to allow for regional patterning of teaching experiences to emerge, if these differences were important to teachers.

3.2. Materials

In the focus groups, the moderator asked teachers to describe their implementation of the program's equity criteria at their school; their perception of the mathematical modeling pedagogy of the class; and to tell a story that exemplifies their experience in the program. Appendix A provides the focus group questioning sequence. The research was conducted under University of Minnesota Institutional Research Board protocol number 00000560. This protocol does not allow publication of focus group transcripts or written comments.

To clarify and extend the focus group comments, and to probe for additional negative experiences with the program, teachers at a subsequent professional development meeting provided written comments on the categories of students at their school who need college readiness opportunities; whether the teacher modifies the curriculum to better serve students at their school; and whether the teacher experiences negative pressures at their school through participation in the concurrent enrollment program. Data analysis focused almost entirely on interview commentary, but we used written comments to check our understanding of teacher experiences in a few cases.

3.3. Data Analysis

The authors worked together to develop a qualitative data analysis plan for the transcribed focus group interviews. The first author led the coding with review from the second author. We needed to attend to interactional features of the group discussion and abstract perspectives for each teacher's comments across a discussion and produce summaries at the regional level before collecting overall results. To achieve this, we used a multi-stage, mixed coding approach that combined structural coding and grounded theory methods. In the initial stages of coding, we used structural coding based on the research questions to collect and summarize each teacher's comments on the research questions: implementation of the equity criteria, and the relation of pedagogy to the equity mission [27]. In creating these abstracted summaries, though, we used in vivo coding to capture the teachers' forms of expression [28]. Because the two research questions were closely related to each other, this combination of structural and in vivo coding allowed the subsequent constant comparative method to better capture teachers' perspectives on their experiences [28,29]. We noted interactional features of the interviews by noting teachers' responses to other teachers' statements when they expressed an elaborated agreement that was more detailed than mere affirmations, such as "yes" or "Ummhmm". The constant comparative method allowed codes to be recategorized into prominent themes at the level of focus group, and then again for the two focus groups for a region [28,29]. A final round of comparison of themes allowed us to create summaries for the full teacher cohort. While the teacher was the focus of analysis, we were interested to retain information on any regional patterning of teacher experiences that might emerge.

3.4. Limitations

The semi-structured focus group method and qualitative data analysis method identifies perspectives that are commonly held among teachers. However, these methods cannot establish a firm ranking of themes. Teachers might really agree with some of the themes, but they did not consider it the most important or interesting idea to express, or they did not express the idea because another teacher had already contributed it. For example, we believe that if asked directly, nearly all teachers would agree that earning free university credit is a benefit of the program. Another important limitation is that the results represent teachers' beliefs about their program participation and student reactions, but do not provide an objective measure. Teachers widely report that they observe positive changes in students' self-confidence and enjoyment of mathematics, but we do not know if students would also report this, and we do not know if students improve their ability to enter higher education institutions and to be successful there as a result of the program. Finally, teachers might have hesitated to discuss negative program experiences due to the dual role of Staats as program coordinator and lead researcher. We dealt with this possibility by reporting single negative comments in Section 4.3.

4. Results

4.1. Common Perspectives on Pedagogy and Program Structure in the CIS Algebra Course

Overall, four themes relating to the mathematical modeling pedagogy (Table 1) and six themes relating to the structure of the concurrent enrollment program (Table 2) captured teachers' most commonly expressed experiences teaching the university algebra class. The tables also summarize of the kinds of teacher commentary that informed each theme.

Table 1. Teachers' perspectives on concurrent enrollment algebra pedagogy.

Pedagogy Themes and Examples
1. Modeling changes students' attitudes. 18 teachers, 67%. • Broad agreement in five out of six focus groups. • Students' adjustment to inquiry mathematics is difficult but valuable. • Students' adjustment to university expectations is difficult but valuable. • Students can improve self-confidence in mathematics or in school performance. • Students can improve enjoyment of mathematics. • Students can improve attitude towards success in university studies.
2. Student growth through writing.
17 teachers, 63%. • Broad agreement in five out of six focus groups. • Uses peer review or multiple drafts. • Scaffolded assignments for English Language Learner (ELL) students. • Writing allows students to express mathematical thinking. • Writing enhances creativity in mathematical thinking.
3. Rewrites or selects models for greater local relevance. 14 teachers, 52%. • Agreement in Greater Minnesota and Inner Metro. • Teachers articulated regionally specific issues. • Several Greater Minnesota and Inner Metro teachers rewrote models to improve local cultural relevance. • Teacher enjoys experimenting with new models.
4. Close relationships with and understanding of students. 10 teachers, 37%. • Agreement in Inner Metro. • Students can have a closer learning relationship with a secondary teacher as compared to university professors. • Modeling pedagogy allows teachers to have greater insight into student learning needs compared to other secondary classes.

Table 2. Teachers' perspectives on concurrent enrollment algebra program structure.

Program Structure Themes and Examples
1. Socioeconomic or demographic categories describe students. 23 teachers, 85%. • Broad agreement in all six focus groups. • Inner and Outer Metro teachers tended to use multiple categories. • Greater Minnesota teachers tended to use low income and first-generation categories.
2. Teacher negotiates tensions in University and school administrative expectations. 17 teachers, 63%. • Agreement in Greater Minnesota and Outer Metro. • Advocating for class despite low class sizes. • Enrolling students different from program criteria in order to reach an adequate class size. • Balances different grading procedures for university and school grades. • Educating school administration about student selection criteria. • Educating school administration about student course sequences.
3. "Academic middle" describes students in the class. 12 teachers, 44%. • Agreement in Greater Minnesota and Outer Metro. • Teachers articulated regionally specific issues. • Only two teachers from the Inner Metro relied on the "academic middle."
4. Free university credit motivates students or their parents. 13 teachers, 48%. • Agreement in Greater Minnesota. • Teachers articulated regionally specific issues. • Greater Minnesota students have limited options to earn university credit.
5. Class serves more females than males. 10 teachers, 37%. • Agreement in Greater Minnesota. • Teachers articulated regionally-specific issues. • Nearly unanimous in Greater Minnesota.

Because the semi-structured focus group format allowed teachers to raise a great variety of issues, we decided that a minimum of nine teachers—one-third of participants—was an adequate level of agreement for reporting results. If at least half of the teachers in both focus groups for a region agreed with a particular theme, then this preliminary regional patterning is noted in the results using the term "agreement". However, absence of a pattern does not imply absence of the perspective, and so regionality in teachers' experiences in the program must be judged based on their development of detailed commentary on a particular theme.

4.2. Was There Regional Patterning in Teachers' Responses?

Overall, there was less regionality than we expected. In the first place, regional distinctiveness was reduced by broad agreement across regions on several important features of the CIS algebra course and program, including observations of positive change in students' attitudes, the role that writing plays in students' growth, and teachers' use of social identity descriptors in the equity criteria—race, class, language status, and family history—for students who enroll in their classes.

In a few cases, teachers offered detailed enough responses to tentatively consider that there are regional differences in experiences. Table 1, theme 3 on rewriting models for greater local relevance is a possible regional difference. Teachers are welcome and encouraged to rewrite models or select more appropriate ones as long as they address algebra class topics, and they note them in their course syllabus. Teachers in Inner Metropolitan and in rural schools found that University-developed models were sometimes culturally biased because they represented urban situations, such as "traffic jams", or middle- and upper-class experiences, such as maximizing profit in a "historic hotel". It is possible

that some of these widely shared models seem culturally less problematic in the Outer Metropolitan schools, and therefore require less rewriting.

Several results from Table 2 are likely to represent actual regional differences. While all teachers would probably value the free university credit, teachers in rural communities commented that travel distances to postsecondary institutions limited students' options for concurrent enrollment experiences. Two additional themes are especially relevant to UDL and are discussed in Section 5: theme 3 on the use of the term "academic middle" for students enrolled in the class and theme 5 on gender in Greater Minnesota.

4.3. Teachers' Concerns about the Program or Pedagogy

We compiled teachers' statements of concern about their participation in the program in Table 3. None were expressed commonly enough to be reported in Tables 1 and 2. In some cases, only one teacher expressed the concern, but because teachers tended to express enthusiasm for the class and for the program, we wanted to amplify their negative comments. Most of these comments arise commonly in our professional development workshops, and so we believe that they would be acknowledged by multiple teachers if they were asked directly about them. Several of these concerns are relevant for UDL and are discussed in Section 5.

Table 3. Teachers' concerns about concurrent enrollment algebra participation.

Teacher Concerns about Pedagogy
• Writing can be a barrier for ELL students.
• Writing is difficult for all students.
• Students request fewer models.
• Students request direct, non-inquiry teaching.
• The workload for teachers is very high.
• Teacher does not enjoy grading writing.
• Teacher reports difficulty in grading mathematical and written content of models.
• Teacher reports difficulty in learning to grade models.
Teacher Concerns about Program Structure
• Inclusion criteria should value women's access to science, technology, engineering, and mathematics (STEM) education.
• Teacher is concerned that college credits might not transfer to the students' universities.
• Teacher was selected by school administration to teach, with some sense of negativity.

5. Discussion and Implications for UDL

In this section, we use Katz' three-block framework for UDL [16] to organize teachers' successes, dilemmas, and concerns in providing inclusive higher education experiences in mathematics to their students. Teachers' experiences with the concurrent enrollment algebra course were generally positive. They raised many issues that resonate with the goals of UDL. However, merely offering a university course through concurrent enrollment does not mean that it will achieve inclusive educational goals. Teachers' commentary provides a deeper understanding of the features of our program that support UDL goals and areas in which it could improve.

Teachers' comments are lightly edited to remove vocalized pauses, such as "um", "you know", "okay", or short repetitive phrases. Pseudonyms have been used for personal or school names.

5.1. Block One Results: Social and Emotional Development through Concurrent Enrollment Algebra

One of teachers' most common lines of commentary was to describe students' change in attitudes towards mathematics and towards their potential for educational success. Teachers described this social and emotional growth as fundamentally situated in the concurrent enrollment framework through students' success in a challenging but flexible and supported curriculum. Many teachers

noted a change in students' understanding of the breadth of mathematics, that the modeling was more enjoyable than the more familiar textbook components of the class.

> ...I have kids every year who said, "I enjoy the model part, or the modeling part, better than I enjoy the actual chapter work we are doing." [Outer Metro]

Teachers also commented that learning to work on a challenging curriculum prepares students for college in a broader sense:

> All of my students that do this class walk away believing that they can do college. [Outer Metro]

Several teachers identified the most challenging aspect of the class, the Extend stage of modeling, as the feature of the class that changes student attitudes towards mathematics:

> ...when they can bring their own models to it, like in the Extend, I think that is the power of this program, and I remember specifically when we were sharing our Extends for that model this year for the class, the kids were really excited and some of them were saying things like, "I never knew math could be fun." [Inner Metro]

The Extend stage of mathematical modeling requires students to pose a new, slightly more difficult question compared to the original task posed by the teacher, and to answer it using mathematics. The UDL principle of offering some student control over the demonstration of their learning can sometimes give students a new sense of enjoyment and understanding of a discipline.

Because concurrent enrollment represents university perspectives on learning, it is not responsible to secondary school curriculum standards, which in the United States can severely constrain secondary teachers' decision-making in teaching. Concurrent enrollment can create a space for a challenging, creative curriculum that is different from a typical secondary school curriculum. As one teacher commented, this creative thinking in mathematics prepares one for lifelong social and emotional development:

> I had a student tell me, that's not in the class, that, "Oh I am just going to drive a truck. I am not going to have to learn about computers." And I am going, "Uh, my father-in-law drove truck for a very, very long time, and he quit just as they were bringing in the computer log. So you are going to end up having to deal with this." [Greater Minnesota]

A second result that is relevant to UDL is that teachers feel they develop close connections with their students. Building relationships among students, teachers, and academic support staff is a goal of UDL [15,30]. Sometimes, teachers compare their close relationships with the teachers' other classes, and sometimes with the student's expected relationship with university professors.

> This course here [*is*] in a setting that is much more comfortable to you. You do not have to feel intimidated because we all know each other here [...] You do not have to be afraid to raise your hand and ask a question. You can get much more individual help and guidance from me in this setting than you would probably be comfortable doing from a college professor. [Outer Metro]

The concurrent enrollment algebra course facilitated relationship-building through several factors. Teachers' need to coach students through a difficult curriculum helped the teacher understand students and their individual learning needs better. In some schools, the student eligibility criteria results in classes that are smaller than typical classes in the school. In other cases, the feeling of closeness to students was due to the year-long format of most of the concurrent enrollment algebra classes.

A last feature of students' social and emotional development through concurrent enrollment is the opportunity to learn about the "hidden curriculum" of expectations and attitudes at universities [31]. An African-American teacher, whose class that year was mostly first generation, African-American students, noted that the concurrent enrollment setting encouraged these kinds of questions.

> I think something that is different in my CIS course is they ask a lot of college questions [...] and we can just talk about, okay, they say, "What if we were at the U [*University of Minnesota*] right now, what would this be like?" And so we really stop, and we have a lot of questions, like questions about college. And things I do not get to talk about with students often. But like, "What would it be like if you turned this in late in college?" You know, that kind of thing. [Inner Metro]

In this teacher's story, the concurrent enrollment setting empowers students to initiate "anticipatory socialization" discussions in their classroom [14]. Several other teachers commented on students' growth in academic responsibility through engaging university expectations.

While teachers' commentary on students' growth was overwhelmingly positive, a few teachers noted that students do not always complete the class with a high level of achievement, which in our grading system is an A or B:

> I will say this. I have a lot of kids who get Cs and a fair number who get Ds. And kids are not too thrilled with that, because they do not want to start their college transcript off with a C or a D. But the reality is the kids that I am getting into the course, and the work that they are producing, you know, I would love to give them As and Bs, but it really is not there as often as I would like to see it. [Outer Metro]

This quote represents the reality of student experience in a challenging class and the complexity of school organization. In our concurrent enrollment system, the classroom teacher should have control over the student roster, but the sense expressed here is that the teacher "gets students" instead of choosing them. Our program seeks to empower teachers in their schools, but this is not always fully achieved.

The strength of this commentary on students' social and emotional development was somewhat surprising. We would have expected that teachers would spend more time discussing the practical feature of free university credit. The concurrent enrollment format allows for a challenging, distinctive curriculum, in a year-long format with small class sizes, that encourages conversations that extend students' understanding of what it means to do mathematics and to be a university student.

5.2. Block Two Results on Inclusive Instructional Practice

Extending UDL principles through concurrent enrollment must begin with an on-campus class that is organized around a disciplinary-based inclusive pedagogy. Students' responsibility to create mathematical methods and explain them is the most important feature of inclusive pedagogy in our class. Many teachers narrated students' changing attitude towards mathematics in terms of this feature of the pedagogy:

> Well, they are used to that traditional model where there is a single answer at the end, and I find that kids at the beginning are very uncomfortable with the models [...] most of our models do have multiple levels of entry, which is awesome. They eventually really love that, but it is a very difficult thing early on. You are constantly reminding them, "Just explain why. Just explain why." [Outer Metro]

Several teachers commented that the creative aspect of the class contributed to their own satisfaction as teachers compared to their secondary courses:

> I love the creative aspect of the class. And I like how I feel a little bit more free in what I can do and choose to do. [Outer Metro]

Another teacher shared a story from her first year teaching, when the first author visited her class and asked students:

> "Does she give you the answers?" And normally in my other classes, they would be so mad at me if I did not give them the answers, but my class goes, "No, no, nope, she is not going to give the answers, so you just have to work it out." I was like (*gasps*). So it was okay that I was not giving them the answers. That was like, "Okay. I think I am doing this okay." [Inner Metro]

Seven teachers (just under the bar for formal reporting of results) mentioned that they had incorporated modeling pedagogy into other classes, or had learned new non-lecture teaching techniques through their work with the class:

> I liked the questioning end of it, too. They question each other and even, myself, you can listen to them and say, "Well, what would you think of, you know, how about this? Or, how about this?" The questioning part of it, which I have had to learn better to do, because, obviously, I am older, and so I am very traditional in how I do. So, this class was a challenge for me to begin with. [Greater Minnesota]

Block two of UDL values multiple forms of assessment that provide student choice in their presentation of learning. Mathematical modeling pedagogy incorporates this through writing, because students must use text alongside mathematical equations, graphs, and numerical tables to explain their methods. One of the most widely shared perspectives was that mathematical writing supported students who were not positioned, by themselves or by teachers, as previously successful math students. For example, a student who "hated math" at the beginning of the class found success through writing:

> ... At the end of the year, she is like, "I cannot wait to write my paper." She was so creative, and she would make like a story out of it. And her Extends were just like short stories. And she could not wait to turn those papers in so that I could read them, and she could show me how she related her solution to whatever thing she came up with. So [...] at the end of the year, she was like, "This is the best math class I have ever taken," just because it was so different than a traditional math class. And she could see her learning throughout the year, too. [Outer Metro]

The teacher who gives out fewer high grades than he would like offered a similar reflection about a student who found the textbook component of the class difficult:

> ...this was a golden course for her [...] the modeling allowed her to take the time to really dig in, think about it, and put it in her own words. And she happened to be an A plus level writer. That's where her true strength was. [...] Boy, was she incredible on those models. And for her, she could not wait for the next model. She hated any time we were in those books, that traditional style. [Outer Metro]

Some teachers focus on developing writing skill through the models because they believe it will strengthen their students' work in non-mathematical university classes:

> But I have really put a big emphasis on their writing skills [...] And so besides getting the math credit, they feel that they are more comfortable going into those classes that need a written paper for college. [Outer Metro]

A strong majority of teachers commented positively on writing as a means of capturing students' mathematical thinking. Several teachers, however, commented on how difficult it was to learn to grade writing, and that they do not enjoy this aspect of the class. Rating student explanations that are different from each other, and that are presented in writing, is a long-standing challenge for teachers using mathematical modeling pedagogy, but several useful guides for grading written mathematical reports exist (see [18,32]). Three teachers also noted that the writing component of the course could be a barrier for English Language Learners:

> I think the write-up part is hard for some of my ELL students. The actual going through the procedure, the hands on, the working together is a good thing. But then when they have to go and write a paper for it, that gets to be a difficulty. [Outer Metro]

A teacher whose class often includes many Spanish speakers developed a workaround for this problem:

> when they turn their models in, sometimes they turn them in, in Spanish first, and then they work with the ESL [*English as a Second Language*] teacher to get it translated [...] It sort of depends on how recently they have been in the country. And their literacy in their primary language. [Inner Metro]

A final pedagogical feature of our concurrent enrollment course is that teachers are encouraged to rewrite mathematical modeling assignments to create greater local relevance. This seemed to be most important to teachers in the Inner Metro or Greater Minnesota Regions, who found cultural bias in some of the models presented in the university professional development sessions:

> ...some of the ones like "Traffic Jam"? (*laughter*) I think, "What do you mean, having to wait for the train?" [Greater Minnesota]

> One specific model change that I do is the "Historic Hotels" which I think is a great model, but my students have absolutely no connection to historic hotels, it has not worked at all. So a few years ago, Sue helped me make a "Selling Tamales" one, where we got a tamale recipe from one of the students, and we just changed it, and it works great and they love it, because they can compare tamale recipes before we start. [Inner Metro]

> ...sometimes I try and pick things that represent not just my scientific background, but more of the social kinds of, like opioid addiction for babies, and things like that, that some of the kids seem to have more of a caring kind of response to. [Inner Metro]

Teachers' commentary on block two, inclusive pedagogy, highlights deeper issues in promoting inclusive teaching through concurrent enrollment. The concurrent enrollment framework for the algebra class allows teachers to present a curriculum that seems distinctive and more challenging than secondary classes that present similar types of mathematics. Teachers value students' enjoyment of mathematical creativity, and teachers also value the opportunity to make curricular decisions that they believe will connect better with students' interests. Many teachers enjoy these features of the course even though it depends on evaluating writing assignments, work that is more difficult and more ambiguous than other aspects of mathematics teaching.

It is important to note that this approach to concurrent enrollment mathematics courses might not be typical. Mathematical modeling classes, while not rare, are under-utilized in early undergraduate mathematics. A concurrent enrollment algebra class that relies on a more common procedurally based pedagogy would probably be experienced differently by students and teachers. The level of supported teacher choice in our program may also be unusual in concurrent enrollment programs. The most fundamental requirement of concurrent enrollment programs is the equivalence of on-campus and school courses in content and pedagogy. Our on-campus curriculum allows some flexibility for instructors, and so this bounded flexibility extends to secondary teachers, too, but we work every year to satisfy the requirement of university and school equivalency. For example, teachers often use our professional development sessions to present models that they have developed or that they have learned elsewhere. Most importantly, our use of a shared framework for expressing modeling tasks (Figure 1) helps preserve a shared pedagogical value system.

Just as UDL offers students the opportunity to introduce their knowledge and interests into course assignments, our approach to concurrent enrollment algebra offers teachers the opportunity to develop and grow in their enjoyment of teaching mathematics. Teachers' commentary on UDL's block

two points towards the need to redesign potential concurrent enrollment classes around inclusive pedagogical practices, but also to intentionally negotiate the fine line between teacher creativity and maintaining equivalence with on-campus curriculum.

5.3. Block Three Results on Inclusivity through Program and Administrative Structure

An early article on UDL in higher education recommends that organizations "develop mission statements that include diverse learners as members of the educational community" [33] (p. 50). Our concurrent enrollment algebra course is framed in this way, focusing on underserved social identities or middle-range academic performance. While we agree that making the equity focus explicit is necessary, it does not remove challenges of implementation. Teachers' commentary on block three, program administration and structure, highlights dilemmas in how to identify the students that the program intends to serve, and the high degree of program advocacy that teachers shoulder in their schools.

In our program, there is a tension between the description of "academic middle", a measure of academic performance in a particular school setting, and the descriptions of social identities that students will likely carry with them as they move through later stages in their lives: race, ethnicity, class, multilingual status, and family history of immigration or of university attendance. Historically in the U.S., students in both categories have fewer college readiness opportunities in their schools and lower levels of enrollment in postsecondary settings. Both descriptions, however, pose quandaries for teachers trying to create equitable pathways at their schools.

One dilemma of implementation of the equity criteria is that the concurrent enrollment algebra class is offered in extremely varied communities. Publicly available school data shows that some schools have few non-White students, some are highly variable from year to year, and some have increased their non-White student body tremendously in the last decade, especially schools in the Outer Metropolitan area and the outer edge of the Inner Metropolitan area [11]. Two of the teachers in Outer Metropolitan schools described their concurrent enrollment algebra classes in comparison to their school's broader racial and ethnic composition, as in this comment:

> I would say racial and ethnical (*sic*)—ethnic diversity is probably stronger in my class than it is in the general population of Vermilion High School, along with private (*sic*) low income students. Things I have question marks about would be multilingual and ELL. I do not know if the percentages in my class are at or below the rest of Vermilion High School. And first gen (*first generation*)—I do not know that, I do not really survey students about that or anything. [Outer Metro]

This teacher was trying to reflect in detail on how well the equity mission was being achieved at his school, but information on students' family history and on the school's multilingual student population was not readily available to him.

Teachers in several Greater Minnesota schools commented that the race and ethnicity categories of the equity criteria were less relevant to them because their school is comprised mostly of White students:

> ...and you know, we do not have any, you know, ethnicity. [...] Not much there. All farmers there for the most part. But it is, you know, low to moderate income. [Greater Minnesota]

Our position is that Whiteness is an ethnicity. However, the intent of this comment was typical of most Greater Minnesota teachers, who rely more on the income and first generation categories instead of the race, ethnicity, and language categories. Even so, in Greater Minnesota, income is also a fraught category for student enrollment in educational support programs. Three teachers in Greater Minnesota agreed that families in their school qualify for, but do not participate in, a federal program that provides free lunches to low-income students.

Teacher 1: But we also have a lot of kids whose families qualify but they do not take it.
Teacher 2: Right. They do not wanna fill out the forms.
Lori: Really?
Teacher 2: It is a status thing.
Teacher 3: Yeah.
Teacher 1: Some of them do not—like, the parents just do not want extra help. They are just like, "We are gonna do this on our own. We are not taking any hand out."
Teacher 2: "I do not need that."
Teacher 3: Yeah.
Lori: Wow. That is interesting.
Teacher 1: We are a pretty strong red county. "No government handouts."

Teacher 1's comment about being a "red county" refers to his municipality's tendency to vote for Republican political candidates. In this context, the three teachers in Greater Minnesota schools used this example to explain that they cannot always identify low income students because their families might not participate in the identifying program.

Teachers in the Inner Metropolitan schools usually commented that the social identity labels described many students in their schools and in the classes that they taught. Only two Outer Metropolitan teachers commented that the academic middle was the primary criteria used at their schools. Most of the teachers who used the "academic middle" terminology work in the Outer Metropolitan and Greater Minnesota regions, schools that either still serve, or until very recently served, predominately White students. However, these teachers almost always used additional social identity descriptions of the students in their concurrent enrollment class.

Two teachers in the Inner Metro region offered an important criticism of our equity criteria. Because women are underrepresented in science, engineering, and other mathematical fields, they felt surprised that our equity criteria do not mention gender. The equity criteria were developed to represent classes in several different disciplines: writing, education, and sociology, in which women are well-represented in higher education, as well as algebra and physics. Teachers in Greater Minnesota did not raise the issue of program criteria directly, but several mentioned that their concurrent enrollment algebra class tends to predominantly enroll young women. They explained that young men might be more likely to chart a course towards trade schools, programs that would require only a lower-level mathematics course, or alternatively towards engineering, which would require a higher-level course, such as calculus. In some schools, young women choose careers, such as nursing or education, in which a single university algebra class is the typical academic requirement, so that the concurrent enrollment algebra class contributes well to their career plans.

Teachers commonly contribute a variety of administrative and program advocacy work for the concurrent enrollment algebra course that goes beyond interpreting the equity criteria at their schools (Table 2, theme 2). The level of hidden work that teachers do to support and administer the concurrent enrollment program at their schools was somewhat unexpected. Several teachers noted that they advocated to initiate concurrent enrollment algebra in their schools, sometimes with school support and sometimes with less support:

> It took me two years to get my department to agree to have the course. They were worried that it would take away enrollment from some of the upper level courses. [Outer Metro]

If the class sizes are very low for a few years, teachers may need to advertise benefits of the class in order to maintain it at the school. One teacher recounted using concurrent enrollment data compiled at the university in her advocacy for the course:

> We just got it a week or so ago from the university that, "This is how much your students save by being in a CIS class," and stuff like that. And I always forward that on to my superintendent. And he then takes it to the school board. [Greater Minnesota]

Several teachers mentioned that they felt concerned that maintaining adequate class sizes that are acceptable at their schools would put them in violation of the university requirement of maintaining 60% of the seats for students in underrepresented groups.

> I have never filled my classroom. So I feel like I am not going to turn a kid away from it when I have 17 kids in my class this year. If I have 18, that is fine. I do not have 35 kids in my class. [Outer Metro]

Thus, teachers navigate a variety of tensions to help maintain the course and ensure proper placement of students.

Outer Metropolitan communities tend to have large schools with multiple mathematical pathways. Sorting out which students should enroll in which math course is another aspect of teachers' hidden advocacy for the class. For example, a teacher commented that the school offers a second concurrent enrollment algebra class with a more traditional, procedurally oriented pedagogy. He feels that stronger algebra students are placed into the traditional algebra class and weaker students are placed into his math modeling class:

> ...I have had several discussions about, you know, "Wait a minute, we have got to think carefully before we just label one as the upper college algebra and the lower college algebra," [...] I think long term, the modeling idea is going to stick with the kids far more than any rudimentary procedural skill type that you would see in your standard college algebra course. [Outer Metro]

As we noted in Section 5.2, the mathematical modeling pedagogy seems difficult at first, but ends up making mathematics accessible to a wider range of students. Teachers sometimes need to educate their administrators that inclusive pedagogy does not make a class less challenging or of lower status.

We appreciate the explicitness of the equity criteria of our program, but we recognize that it is sometimes difficult for teachers to implement. The terminology of the "academic middle" is especially fraught. On the one hand, the concept of "academic middle" has less utility than we expected, because nearly all teachers referred to students' social identities in their descriptions of the way the equity mission of the school functions at their schools. The concept of "academic middle" could potentially shield schools against naming, identifying, and engaging the broad patterns of inequality in education that inspired the change in the concurrent enrollment program's focus. On the other hand, focus group discussions uncovered the potential that low-income White parents may disavow participation in programs framed by income, race, ethnicity, and other social identities, even if their students have reduced access to higher education. The "academic middle" may encourage continued program participation among these families. More immediately, the teachers noted that they do not always have access to information, such as language status or family educational history, that are included in the program equity criteria.

6. Conclusions

Increasingly, concurrent enrollment programs position themselves as a way to strengthen pathways of underserved students into higher education. The UDL movement in higher education shares this goal, with similar interest in periods of educational transitions [15]. However, very few scholarly reports address concurrent enrollment through UDL frameworks. This paper contributes to this research need by identifying secondary teachers' experiences in implementing UDL features of a concurrent enrollment algebra course, in particular, their perceptions of the impacts of the course and its pedagogy and the work they do to interpret and implement the equity mission.

Teachers' experiences with the program were not always positive or fully coordinated with their settings. Teachers expressed some discomfort with the ambiguity and workload concomitant with mathematical modeling pedagogy. They grappled with assignments and with program criteria that do not always speak to their settings. After engaging in an enormous learning curve to teach the

class, they often have to advocate in their schools for its continuance or for its appropriate positioning in curricular flows. However, at the same time, teachers expressed a great deal of enjoyment in teaching and in nurturing students' growth through the course. Their positive comments resonate with UDL goals. Teachers believe that many of their students improve their self-concept and academic skills, such as writing and critical thinking. Teachers value a class that allows them to share their knowledge of university life and expectations and to make significant decisions in their manner of teaching students.

The most important conclusion to draw from this paper is that higher education faculty who work in equity-focused concurrent enrollment programs should redesign their classes using inclusive pedagogies. Learning experiences should go beyond routine skills to engage students in a creative activity appropriate to the discipline. Conversely, concurrent enrollment programs with equity missions should select participating university courses that are committed to UDL principles. These actions are necessary to align the equity focus of many concurrent enrollment programs with the actual experience of secondary teachers and students in the courses. It is worth recalling that in recent years, 82% of secondary schools in the U.S. offered some form of concurrent enrollment through postsecondary educational partnerships, encompassing over 2 million student registrations [2]. Beyond the particular circumstances of our mathematical modeling algebra program, the potential national impact of redesigning all concurrent enrollment courses around UDL design features is substantial.

This call to action will not be easy to achieve. Our commentary highlights dilemmas that faculty and concurrent enrollment administrators will need to consider. One dilemma is the decision of naming the learners who are the focus of the equity mission. We feel it is important to explicitly name the longstanding social categories of exclusion: race, ethnicity, class, language status, family history, disability status, and in mathematics curricula, gender. The terminology of the "academic middle" is ambiguous. It may facilitate program participation in some cultural or political settings, but it can also become a shield that prevents direct engagement with social structures of exclusion. Without clearly articulated equity missions, incorporation of inclusive pedagogies, and continuous monitoring of equity outcomes, concurrent enrollment programs may merely support access for students who already enjoy many opportunities [9]. Assessment of equity in concurrent enrollment programs will be substantially enhanced by using a broad framework UDL that promotes understanding of the many entanglements of educational structures, pedagogies, and student emotional and social development [16].

A second dilemma involves the equivalency principle of concurrent enrollment, that the secondary classes must convey the same disciplinary content through the same pedagogy as on-campus classes, as determined by the faculty coordinator. In the concurrent enrollment algebra course, we use a common format for writing major assignments (Figure 1) and we share and study new assignments together during professional development meetings. This ability to experiment within boundaries, or to redesign assignments for local needs, appears to be a feature of our course that teachers enjoy a great deal. This combination of regimentation, experimentation, and in-depth communication allows us to fulfill UDL principles along with the university oversight that is fundamental to the equivalency principle. Concurrent enrollment faculty and administrators will need to grapple with similar issues of defining the meaning of equitable concurrent enrollment and critically investigating how teachers enact it in the varying social landscapes of their schools.

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Appendix A

Focus Group Questions

1. Tell us your name, your school, and how you got involved with CI 1806: College Algebra through Modeling?

2. As an Entry Point CIS class, the majority of students in the class should be students who are underrepresented at universities, such as English Language Learning students, ethnically or racially diverse students, first-generation college students, low income students, or students in the 50th to 80th percentile of their class.

How easily does the CIS definition of equity fit your work? What dilemmas does the equity mission pose for you and how do you respond to these dilemmas?

3. Does the math modeling pedagogy support or hinder the equity mission of the class?

4. Think back over the years that you have taught this class. Share a moment that best illustrates your experience as a teacher of College Algebra through Modeling.

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education sciences

MDPI

Concept Paper

Ignatian Pedagogy as a Frame for Universal Design in College: Meeting Learning Needs of Generation Z

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Abstract: In viewing the principles of Universal Instructional Design (UID), both inside and outside the classroom, a direct connection may be made to the principles of Ignatian pedagogy—a 500-year old tradition of education—in meeting the learning needs of today's college students, Generation Z. The Ignatian pedagogy as a frame for universal instructiosnal design principles can guide instructors to understand how college students can learn best and facilitate that knowledge acquisition to serve the common good. This article addresses Generation Z's experience with digital technology and illustrates how the Ignatian pedagogical model tenets (i.e., context, experience, reflection, action, and evaluation) connect with UID practices in a higher education curriculum. Examples of UID, as it applies to each tenet and to web access, are included.

Keywords: universal design; universal instructional design; Jesuit tradition; Ignatian pedagogy; Generation Z

1. Introduction

The basic premise of the universal instructional design is that curriculum should include alternatives to make it accessible and applicable to students with diverse backgrounds, learning styles, abilities, and disabilities [1]. Applied to higher education, the primary goal of Universal Design is to create inclusive, flexible, customizable products, courses, technologies, programs, activities, and environments. Although various titles and acronyms are employed to describe this universal design, as it relates to learning, such as Universal Design for Learning (UDL), Universal Design for Instruction (UDI), and Universal Instructional Design (UID) [2], UID is the terminology that has been used in this article. Universal Instructional Design (UID) is an educational framework, which provides learners with multiple ways of acquiring knowledge, demonstrating knowledge, and engaging in their learning. It is used as a model for equitable access; diversity, multiculture, and disability education; ally development and social justice [2–7].

Benefits of UID are ever-growing to include cost effectiveness, efficiency, enhancing engagement in learning, minimizing individualized accommodations, recognizing individual differences among learners, including differences in learning styles, and allowing multiple methods of teaching and learning both inside and outside the classroom [3,5,7]. Although challenges may arise, including advanced planning/time constraints, familiarity with local resources, administrative support, and knowledge of available technologies, the benefits of the UID tend to outweigh the costs. For example, providing all students with class notes in online accessible formats and exams with unlimited time restraints promotes an equitable learning environment respectful of the students' learning preferences.

Influenced by Chickering and Gamson's "Seven Principles for Good Practice in Undergraduate Education", [8] and the Center for Universal Design's "Principles of Universal Design" [9], researchers at the University of Minnesota, Twin Cities created the following UID principles:

- Create a classroom climate that fosters trust and respect.
- Determine the essential components of the course.
- Provide clear expectations and feedback.
- Explore ways to incorporate natural supports for learning.
- Provide multimodal instructional methods.
- Provide a variety of ways to demonstrate knowledge.
- Use technology to enhance learning opportunities.
- Encourage faculty-student contact. [10]

In viewing these principles, a direct connection may be made to the principles of Ignatian pedagogy (i.e., context, experience, reflection, action, evaluation) demonstrating how the Jesuit tradition of education can frame UID in higher education, particularly its use of pedagogical methods and recommendations for website development. Advancement in technology has played a significant role in fostering UID and is instrumental in its global application and growth [3,11]. Reflecting on the make-up and learning styles of current college students and their understanding and use of technology, provides a framework for the application of UID both inside and outside the classroom. The focus of this article will be how the Ignatian pedagogical model of Catholic, Jesuit universities can frame universal instructional design in meeting the learning needs of Generation Z. To this end, the article will highlight the following areas: Generation Z and its experience with technology; the five components of Ignatian pedagogy and each component's UID connection; and Ignatian pedagogy via web access, incorporating examples of UID practices in web accessibility.

2. Current College Students, Learning, and Technology

The current student cohort, Generation Z, born after 1995, exhibit unique characteristics that are different from their predecessor, the Millennials. This generation of students has been shaped by technology more so than the other generations preceding them. It is through technology they have learned about the major social ills of the 21st century, such as matters of violence, unpredictable economy, and various social issues. They grew up in a post 9/11 environment with palatable tension between ethnic groups and witnessed the effect of the unstable economy on their parents and their immediate families. The Internet and social media broadcast public shootings and unresolved violence and terrorism, on the national and the international scenes. Regardless of fear and worry, instilled by the world presented by the Internet, Generation Z students believe they can change the world [12].

The developmental needs of Generation Z college students are acutely evident, based on their acquisition methods of information and career aspirations. While college students have had access to digital technologies, their access varies; thus it is difficult to generalize that all college students have equal access to, and are immersed, in digital technologies [13]. In the same vein, these digital natives use a variety of digital technology to be socially connected with others, but its use in academic settings is marginal [13,14]. It has been found that students' critical thinking skills are underdeveloped when accessing and evaluating information received from the Internet, thus, suggesting their digital technology skills are basic at the most [15]. Despite the lack of congruity about how this generation of college students' learning preferences are influenced by their use of digital technology, their contributions to the make-up of the college community is evident.

A unique characteristic of Generation Z is their penchant for intrapersonal learning. They prefer to learn independently and at their own pace. Once they have learned the specific course content, they then enjoy working in group settings where they can engage in classroom discussions to apply the content they have learned. While they want a voice in setting their own learning pace, they see the benefits from working with others. Logic-based approaches and experimental learning are their

preferred forms of learning since these approaches allow for information to be organized into solutions and discovering which ones are appropriate for real-life situations [12,16]. The juxtaposition of intrapersonal and interpersonal learning contributes to their desire to be educated in relevant and applicable knowledge appropriate for the workforce, due to the ramifications of the economic and societal issues facing them and their families of origin [12]. Their learning preference is one where they can learn applicable knowledge and skills for the workforce. In many ways, Generation Z presents colleges and universities with a challenge to rethink its curriculum from being teacher-centered to learner-centered [16].

Building upon the learning preferences of Generation Z, university faculty members have an opportunity to use the talents and interests of the contemporary learner in assisting them in their pursuit of knowledge. Faculty may dictate what the learner needs to learn, but not how they learn. Generation Z seeks engaging instructors who do not rely on a lecture format. Since they prefer a hands-on approach to their learning, Generation Z prefers to take an active role in how they learn rather than a passive stance experienced when listening to an instructor lecture [12].

While college faculty may not have learned pedagogy in their terminal degree programs, the Ignatian pedagogy, as a frame for universal instructional design principles, can guide them in their task to learn how college students learn best and facilitate their knowledge acquisition to serve the common good of others. Since Generation Z has been raised with a technological advantage over and above previous generations, regarding knowledge of global and national issues, these students could benefit from a curriculum tailored to their strengths, such as persistence, realists, and desiring to make positive social changes in the world [12,17,18]. The following section offers applications of the UID principles via the tenets of Ignatian pedagogy.

3. Jesuit Tradition of Education and Ignatian Pedagogy

Ignatius Loyola founded the Jesuit Order in 1540 and the Order started teaching university students in 1548. The Jesuits often quote Cicero, "We are not born for ourselves alone" [19]. With Cicero in mind, Ignatian education is a collaborative process between teachers and learners where inquiry, creativity, discovery, and reflection aid in personal and professional development in the service to others [20]. Teachers and staff share in the academic, affective, and spiritual development of learners. In the Ignatian pedagogy, everyone shares and joins the learners in a process that includes context, experience, reflection, action, and evaluation [20]. Each element of the five-fold model of Ignatian pedagogy builds off each other; these have been described below.

3.1. Context

Ignatian pedagogy begins with the human experience. Thus, it is critical for faculty and student affairs professionals to understand the students' context within which learning occurs. At the microsystem level, context refers to the learner's background, such as family, society, economics, culture, faith tradition, and other variables that affect the learning process. The contextual elements at the mesosystem level include the institutional environment of the college or university. Here, it is important to learn how these elements contribute to the climate for learning. Likewise, it is important to learn how the students' context at the macrosystem level, such as socioeconomic, political, and cultural elements, affect their growth as a person. Lastly, it behooves instructors and student affair professionals to learn what pertinent knowledge students bring with them, to the learning environment. A focus on their feelings, attitudes, and values, pertaining to their knowledge base, helps the instructor or professional in having a holistic perspective of the students [21].

The following examples are ways in which the Universal Instructional Design [UID] can be incorporated in the Ignatian pedagogical component of *context*. Getting to know students' backgrounds and learning styles will help instructors create welcoming and respectful learning environments for students. This may be accomplished by sending a welcome email to students, prior to the beginning of the class; creating introductory exercises that are personable, friendly, and encourage humor;

encouraging students to share photos of themselves and their families, pets, vacations, favorite places, favorite food, etc.; learning students names and using their names in communication; collecting information about one's students via a student information sheet or interest inventory; including a syllabus statement that fosters an inclusive learning environment; being open to meeting with students face-to-face or online (e.g., "virtual office hours" via Google Chat, Fuze Meeting, Skype, etc.), and letting students know from the outset the environment is inclusive and their voices will be heard. Instructors may determine the learning styles of their students by asking students to complete the VARK (Visual, Aural, Read/Write, and Kinesthetic) assessment, a guide to learning styles, by Neil Fleming [22] and share their results with the class, thus informing others of their preferred ways of learning. Complimenting student participation and effort may foster a welcoming and respectful environment.

The authors of this scholarly piece teach graduate students in a higher education academic program. Throughout the semester, the authors seek feedback from the graduate students on their experience with the course and what could make their learning better, as the semester progresses. This information is evaluated against the course objectives. If appropriate, adjustments are made, thus, creating a context where students' learning goals can be better met.

All aspects of the Ignatian pedagogy lead to "its ultimate goal . . . to develop men and women of competence, conscience and compassion" [21] (p. 158). The challenge of the Ignatian pedagogy, for the educators, is to infuse in the curriculum experiences an active reflection on the systemic dimensions of the experience. To gain further understanding of the importance of experience and reflection, faculty can learn from the 20th century educator, John Dewey.

John Dewey had a keen understanding of the nature of knowledge and society. His pragmatic and experiential approach to knowledge was central to his educational philosophy. He argued against the early 20th century view on the acquisition of knowledge. Knowledge was perceived to be fundamentally empirical and theoretical, thus acquisition was passive. He challenged the current perspectives by arguing that knowledge is about responding to one's situation in the world. It is then a way to maneuver, in the world. He acknowledged a natural tension in obtaining knowledge. If one is not sensing a challenge in learning, then reflection, analysis, and defining knowledge cannot take place. It is through experience that valid knowledge is acquired, helping the learner to resolve problems of doubt [23].

This active way of learning has two key benefits. The first is that kinesthetic learning allows learners to understand concepts of science and the humanities by applying them to concrete situations. Memorization and regurgitation of facts can be helpful but applying them provides a breadth and depth that aids in long-term memory formation. Dewey suggests that when students are involved in real life contexts, the material is interesting [23].

Dewey argued for an "education of, by and for experience" [23] (p. 29). An education by experience allows learners to learn through experiences inside and outside the classroom. An education of experience challenges learners to make sense of knowledge by using the intellectual gain in preparing learners to deal with future situations [23]. While not all experiences are equally educative, experiences allow the learner an open mind and foster an intelligent response to realistic situations. The faculty member's task is to create experiences with the goal of developing students to be global citizens who use intelligent resourcefulness in responding to the societal ills [23].

3.2. Experience

Capitalizing on Generation Z's interests, strengths, and natural inclination to gather information from the Internet, allows instructors to not just be agents of knowledge but facilitate a process for making sense of the overabundance of information [12]. The task of the instructor is to engage students by determining essential program components; establishing clear expectations and feedback; developing natural supports for learning through technology and other modes; and using multiple teaching methods that consider diverse learning styles, abilities, ways of knowing, and previous

experience and background knowledge. Experiences are meant to challenge and confront students' knowledge, at that point in time. These can perturb the students' learning cycle and trigger new growth. With context in mind, the teacher can create experiences to engage students, holistically. Here, experiences move the student beyond their cognitions to include their heart and will in the learning experience. Without the inclusion of the imagination and emotions, within the cognitive dimension, the student would not be moved to action [21].

Experiences can be direct or vicarious. Direct experiences are interpersonal in nature where discussions, service projects, or participation in sports lend themselves to learning new knowledge [20]. Instructors can create experiences for Generation Z which align with their interest to change the world through invention. Generation Z prefers community engagement opportunities where they can make a lasting impact on the underlying social ills. They do not think in terms of short-term gains but rather in long-term gains. Thus, this generation thinks more as social entrepreneurs [12]. As social change entrepreneurs, this generation seems more interested in working for themselves after college, thus, cultivating the current gig economy where workers engage in freelance work. Internships while in college are especially important to their overall development [12].

Vicarious experiences challenge the student to use their imagination and senses to enter more fully into the topic at hand. Use of reading materials, simulations, role playing, and videos are good examples. By offering a broad array of experiences, appropriate to the course content, instructors and professionals can expect learners to attend, apply, analyze, synthesize, and evaluate the variables that confront the human condition [21].

The following examples are additional ways Universal Instructional Design (UID) can be incorporated in the Ignatian pedagogical component of *experience*. Instructors may consider utilizing multi-modal teaching techniques including, lecture, large group discussion, small group discussion, think-pair-share, role playing, case studies, games, exercises, guest speakers, panels, movies, videos, podcasts, vodcasts, and project- or problem-based learning. Ensuring all field trips, labs, and educational opportunities outside of the classroom are accessible to all students and establishing learning communities and/or "study buddies", in the course, to provide students with classmate resources and peer-to-peer learning opportunities will enhance the universal learning.

3.3. Reflection

The subjective nature of knowledge acquisition includes making judgments about new information. One developmental area affected by the consequence of Generation Z college students' involvement in technology, is reflection. In a world where continued stimulation prevails, due to the variety of technological platforms, there tends to be less time for reflection, where learning takes place from making meaning from the diverse experiences encountered daily [24].

College faculty have an opportunity to integrate reflective activities in their courses to strengthen the learning effect of the course content. Purposeful, critical reflection intentionally engages students to consider their experiences, considering specific learning objectives [25], [26]. Reflection, the third Ignatian pedagogical component, is used by the faculty to understand what meanings students derive from the course content. Key to the learning process, teachers develop questions and guide discussion, writing assignments and other activities that tie the learners' experiences to the course content. Students are asked to answer the following questions: What course components/experiences stand out; What is the significance of the content/experience considering your learning objectives? What will you do with the new knowledge? In doing so, this provides a depth and breadth of the meaning to their learning. Reflection allows students to discern and clarify the reasons for the judgments. Instructors and professionals can develop reflective activities for students to utilize in naming the meanings attached to what is being learned and uncover its link to other knowledge, their developing a sense of self, and human endeavors, all the while appreciating the evolutionary dimension of the search for truth. Reflection aids in the conscience formation of students, thus moving them to act [21].

Capitalizing on Generation Z college students' preference for intrapersonal learning, multiple types of UID opportunities exist for students to critically *reflect* upon their knowledge of the course content. Instructors may accomplish this by offering students the option of papers, presentations, PowerPoint's, online presentations via narrated PowerPoints, or through Tegrity, team assignments, poster sessions, role playing, websites, games, exercises, case studies, online discussions, individual and group projects, structured journal entries and writing assignments; and multi-media products, such as drawings, collages, and photo, or video essays.

3.4. Action

By reflecting on their experiences, both cognitively and affectively, students are then moved to action. The term action refers to the students' internal growth which involves two steps. Considering their cognitive understanding of the experience and the resulting affect, students' growth occurs when they decide that the new knowledge will clarify their values and priorities and allow the truth to guide their continued growth. Eventually, this new, interiorized knowledge may prompt students to do something consistent with their new-found knowledge. From the reflection of their contextual experiences, students can own their own knowledge base and serve others, thus bettering the welfare of society and themselves [21].

Upon reflection of their experiences, learners determine action, the fourth Ignatian pedagogical component, by asking themselves, "Now what?" How may they use their knowledge to serve others and better the welfare of humanity? Given Generation Z's description of themselves as change agents and desire to create change but lacking the creativity to do so, faculty may need to guide Generation Z college students in determining their next steps, with their knowledge base [27]. Encouraging contact between/among students, instructors, and others is a universal design principle which supports action. Good practices of the Universal Instructional Design (UID) incorporated into the Ignatian pedagogical component of *action* may include, being available and encouraging conversation and assistance via email, chat, phone, discussion board, chatrooms, and in person; encouraging students to develop peer learning communities, study groups and collaborative efforts via Google Docs, wikis, social media, and websites; and promoting student engagement with current and potential employers through electronic portfolios such as Foliotek. Additional ideas include students creating action steps addressing problems they and their friends encounter, petitioning for improvements in community services, and immersing themselves in community programs serving the minoritized populations [27].

3.5. Evaluation

University faculty know and value the periodic use of measures to evaluate students' acquisition of knowledge. These evaluative measures are intentional "check -ins" which allow the teacher and students to determine where there is intellectual growth and gaps in knowledge. This information alerts the teacher to possible shifts in pedagogical methods and opportunities for individualized attention on each student. Teachers evaluate the whole person using effective means, such as assessment, writing assignments, and critical skill application [21].

A myriad of Universal Instructional Design (UID) practices align well with the fifth and final Ignatian pedagogical component of *evaluation*. UID examples of evaluation include providing students with completed grading rubrics, including written comments in a timely manner (i.e., preferably at least one week prior to the due date of the next assignment); discussing in class the overall strengths and weaknesses of the completed assignments; asking students to complete peer evaluations for team members; encouraging students to submit assignments at least one week prior to due date for teacher and peer review, before resubmitting revised assignment; asking students to do a one-minute paper at the end of the class to outline what they learned, indicate when they were the most/least engaged, and provide comments about the day's class; and providing students with information regarding how to access support structures, such as tutoring, writing center, and other out-of-class assistance.

Ignatius Loyola and John Dewey believed engagement in the world complements the pursuit of empirical and theoretical knowledge. Experience becomes a portal into a dimension that the written word cannot adequately provide. The challenge is one, both, Ignatius Loyola and John Dewey faced themselves as educators, that of how to create transformative experiences. This is not unique unto educators. Students, through their use of technology, seek new knowledge to further their human and professional development. To meet Generation Z's expectations regarding technology, the next logical step in applying the Universal Instructional Design (UID) principles to the Ignatian Pedagogy is via website access. Promoting UID as a framework for such learning via technology offers learners an inclusive, welcoming environment, thus, embracing and embodying the spirit of the law.

4. Ignatian Pedagogy via Web Access

Despite the apparent expectations of current college students toward technology, "the digital divide" may construct barriers to impede access. Three such barriers identified by Nielson include economic (ability to access or own), usability (knowledge base and skills), and empowerment (comprehension of the benefits) [28]. To meet Generation Z's expectations regarding technology and to address the digital divide, the next logical step in applying the UID principles to Ignatian pedagogy is via website access. Building upon the teachings of Ignatius Loyola and John Dewey, educators create transformative experiences for learners through reflection and action. Promoting UID as a framework for such learning via technology offers learners an inclusive, welcoming environment, thus, embracing and embodying the spirit of the law.

As previously stated, the letter of the law in the United States regarding inclusion and discrimination of people with disabilities, continues to be questioned. In 2017, Vu and Sverdlov reported over eight hundred federal complaints about allegedly inaccessible websites being filed, with three hundred and forty-nine complaints being filed in January and February of 2018; a trend indicating the number of complaints and lawsuits will be increasing [29].

The Americans with Disabilities Act of 1990 [30] protects the rights of people with disabilities to visit, interact with, and benefit from all that the internet has to offer. Although the federal government has not provided specific guidelines for web access, courts are ruling in favor of web accessibility demonstrated in cases involving corporations such as Winn Dixie, Hobby Lobby, Five Guys Restaurant, and Blick Art Materials, among others. Per Lewin, given this litigious pattern, which includes federal lawsuits against Harvard University and MIT for not providing closed captioning for online courses and other education materials, trends indicate additional educational institutions most likely will be defendants in such cases. Therefore, making all electronic materials accessible to all users, including people with disabilities, is essential [31].

Ensuring compliance by identifying and following recommendation and the legal mandates, is one way to accomplish this. Sources for the web content standards include (1) Web Content Accessibility Guidelines [32] developed through the Web Accessibility Initiative (WAI) of the World Wide Web Consortium (W3C), a global consortium of individuals and organizations, around the world, providing a shared standard for web content accessibility. (2) Section 508 of The Rehabilitation Act Standards [33], which was updated on January 18, 2017 by the Architectural and Transportation Barriers Compliance Board with requirements for information and communication technology, covered by Section 508 of the Rehabilitation Act and Section 255 of the Communication Act [34]. Section 508 of the Rehabilitation Act is a procurement legislation that applies only to the U.S. federal agencies.

Another natural step in making a campus' electronic materials accessible to all users is through Universal Instructional Design (UID). Incorporating UID principles in technology will allow entities, including colleges and universities, to move beyond the letter of the law and live the spirit of the law, by providing inclusive welcoming environments for everyone. Aligning these web access guidelines with the UID principles will lead to the creation of welcoming, respectful online environments, thus, promoting Jesuit traditions of care (i.e., cura personalis, care for the whole person) and inclusion and potentially meeting the expectations of current college students.

The Web Content Accessibility Guidelines Checklist includes the following recommendations: Provide text alternatives for all non-text content; provide synchronized alternatives for multimedia; make it easy to distinguish foreground information from its background; allow users to control time limits on their reading or interaction; allow users to avoid content that could cause seizures due to photosensitivity; provide mechanisms to help users find content, orient themselves within it, and navigate through it; help users avoid mistakes and make it easy to correct mistakes that do occur; make text content readable and understandable; make the placement and functionality of content predictable; support compatibility with current and future user agents (including assistive technologies); and ensure content is accessible or provide an accessible alternative. A useful resource on the WAI website is Easy Checks—A First Review of Web Accessibility [35].

A UID-Friendly Website

In the spirit of Ignatius Loyola and the Jesuit values of teaching and learning, a respectful, welcoming environment for all human beings is essential. At the 2018 World Meeting of Universities Entrusted to the Society of Jesus, Father General expressed to higher education Jesuit leaders "the importance of recognizing others as their equals in terms of dignity and rights" [36] [p. 6]. In today's world, a website can be the first impression, indicating how we recognize human dignity. It can be the window to one's philosophy, personality, and perspectives, demonstrating how we see and value others. A universally designed website considers the needs of all people, including individuals with disabilities, individuals older or younger than the average user, people for whom English is a second language, and those using outdated hardware and software [3]. Utilizing the above resources and working with web accessibility experts, such as the World Wide Web Consortium, is essential when creating UID-friendly accessible websites. Here are some examples of creating an inclusive, welcoming, website. Begin with a clear, easy-to-read format. Large sans serif font (i.e., font without tails) in a high contrast background, with plenty of "white space" (thus, few words in an uncrowded space). These key components, particularly those with a keen understanding of the screen reader software, i.e., text-to-speech programs, provide accessibility for a variety of individuals who have low vision, cognitive, and learning disabilities. Although flashy colors, moving parts, and an abundance of photos seem to be standard in websites today, these factors may result in inaccessible environments. To "read" the website, the screen reader software requires stationary text, alternate text for photos and illustrations, and descriptions of visuals [37]. Captioning, written text, and text transcripts provides access to videos and audio materials. The University of Washington DO IT website provides useful instruction and examples for designing accessible website. Resources on the DO IT website, related to website development, include AccessSTEM, AccessWEB, Faculty Room, and the Center for Universal Design in Education [38].

5. Conclusion

As the United States awaits new regulations about the websites of public accommodations and state and local governments, private and public colleges and universities are encouraged to move forward in ensuring equal access to its online information and curriculum. Instrumental in the education of today's college students is attention to the learning needs of Generation Z, particularly their experience with and expectations surrounding digital technology. As teachers and staff share in the development of students, they may join in the transformative learning process vis-à-vis context, experience, reflection, action, and evaluation—each component, building upon the other. With the Jesuit tradition of education and Ignatian pedagogy as a frame for universally designed learning and instruction, the 500-year old tradition of the Ignatian pedagogy lives on in college educators and their students as they develop and utilize UID-friendly curriculum, websites, programs, and services, thus, modeling a modern-day approach to inclusive education.

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education sciences

MDPI

Concept Paper

Integrating Universal Design, Culturally Sustaining Practices, and Constructivism to Advance Inclusive Pedagogy in the Undergraduate Classroom

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Abstract: While primary and secondary teachers are legally required to adhere to inclusion guidelines for students experiencing disabilities, instructors in higher education have had more leeway to operate under a more traditional paradigm which can marginalize rather than include students in the classroom. Furthermore, students experience exclusion for reasons other than and in addition to disabilities, including, race, ethnicity, language, gender, and sexual orientation. Inorderto advance inclusion for all students in the higher education classroom, we propose integrating universal design, culturally sustaining pedagogy, and constructivist approaches to teaching and learning. We aim to not only forward an integrative theoretical framework for inclusive pedagogy grounded in a constructivist perspective, but to also provide practical strategies that promote a more inclusive undergraduate classroom.

Keywords: universal design; culturally sustaining pedagogy; inclusive pedagogy; constructivism; undergraduate classroom

1. Introduction

The paradigms of universal instructional design (UID) and universal design for instruction (UDI) emphasize the importance of ensuring accessibility in the educational environment for students with disabilities [1–3]. Beyond a focus on the physical classroom and curriculum, these paradigms of teaching and learning require instructors to examine their basic pedagogical frameworks through the lens of accessibility for all students in the classroom. However, recent critiques of these paradigms highlight that in their inception neither UDI nor UID recognized diversity beyond disabilities [3–6].

Representing a kind of intersection between racism and ableism, not seeing color or recognizing racial diversity has worked to reify the dominant cultural narrative that devalues race as an important part of identity and that stigmatizes difference [7]. In fact, even in the area of disability services, difference can play out as "deficit". For example, in most higher education settings the onus is on the student to self-identify as having a disability (deficit), to request an "accommodation" (meant to eliminate the deficit), and to communicate the accommodation with the instructor (again meant to eliminate the deficit) [1,5].

By ignoring the need to design (from the ground up) inherently "open" or accessible spaces and pedagogical practices, traditional approaches to teaching and learning ignore the principle that it is the institution or classroom environment that is limited (or disabled), not the student [8]. Universal instructional design and UDI have advanced the field in this area and inclusive pedagogy can further extend the work. While inclusive pedagogy has utilized a broad definition of inclusion,

the literature has focused predominantly on the inclusion of those with disabilities, and it has only recently been suggested that a truly inclusive pedagogy should explicitly include age, gender, racial, ethnic, and cultural diversity as well [4].

Waitoller and Thorius [4] call for cross-pollinating universal design with culturally sustaining pedagogy to broaden the scope of inclusion and the ability of inclusive pedagogy to address intersecting identities, including intersections of race and disability. Like universal design, culturally sustaining pedagogy challenges the assumption that there is a "normal" or "average" student. An assumption that can perpetuate a deficit orientation in which the instructor or educational system works to eliminate deficits, while ignoring assets, to help students approximate the norm [9]. From the perspectives of culturally sustaining pedagogy and universal design, all students are unique, and it is the systems in education that are disabling rather than the students who are disabled [10]. In contrast to a deficit orientation, these perspectives are asset based. Furthermore, culturally sustaining pedagogy assumes that all students have cultural practices that are valuable in a learning context [4].

In addition to cross-pollinating culturally sustaining pedagogy with universal design, in this paper we advocate for the inclusion of a constructivist approach to education, and we provide examples for how integration across these three paradigms can occur in social science classrooms. Like culturally sustaining pedagogy, constructivist theory can provide a framework for examining the inequities and injustices that are present in the undergraduate classroom. This framework stands in stark contrast to the traditional model of teaching. In the traditional model, the instructor provides knowledge, and the student learns by receiving this knowledge and applying it to previous knowledge. In constructivist theory, however, knowledge is not transmitted but created [11]. Within constructivist theory more generally, there is disagreement about where the positioning of knowledge lies, e.g., within the individual or the interaction of the individual within the environment [12]. In social constructivist theory the assumption is that since knowledge is inextricable from a social setting, it is always created in the interaction of individuals [13].

The social constructivist theory is particularly useful for considering educational practices that create an inclusive environment. From this perspective, the instructor approaches the classroom as a co-creator of knowledge working alongside the student rather than in front of the student. The constructivist approach fits with critical race theory [14] in that it provides counter-narratives to students where they can then engage with the material and create meaning based out of their life experiences. This also provides an additional pathway for access and inclusion in line with the fundamental aim of universal design and inclusive pedagogy. For example, rather than relying on and reifying a normative life experience that can leave many at the margins, in the constructivist classroom instructors and students can act as co-creators of knowledge that is connected to the life experiences of those in the room as they engage in the process of making meaning of curricular material.

2. Co-Creating and Sharing the Space

In order to design an inclusive classroom, the adoption of a critical perspective is required. Recognizing the hidden values and underlying assumptions present in the educational environment is the first step. What factors contribute to exclusion and inaccessibility in the classroom for students? Key among these factors is the power imbalance inherent between instructor and student. How to share the space is a critical question. From a constructivist approach to teaching and learning, the teacher is viewed as a facilitator of learning rather than an all-knowing expert, and in the constructivist classroom, the instructor shares the space with students to co-create knowledge. In other words, rather than a one-way process of transmission (i.e., teacher transmitting knowledge to students), teaching and learning is a dynamic process of co-construction. Students are not simply empty vessels waiting to be filled (a deficit orientation) but active partners in the learning process (asset based). It is an inclusive approach at an elemental level, seeking to engage students in the learning process.

From a social constructivist perspective, academic inclusion and social inclusion go hand in hand. The instructor sets the social and emotional tone of the classroom through overt statements and

behavioral modeling. Soliciting the ideas, voices, and perspectives of students to develop classroom norms can set the stage for developing an inclusive instructional climate.

2.1. Developing Norms for Interaction

Articulating norms for interaction in the classroom cultivates inclusion. While the development of classroom norms are co-created with students, the instructor has the responsibility and privilege of designing an inclusive classroom space. The design of the classroom includes plans to not only welcome students to the space but to also orient students to learning in an inclusive environment. In welcoming students, I (the second author) introduce three key assumptions: all students are capable of learning, students' active participation is essential for learning, and learning is an ongoing process rather than an end state. While these are assumptions commonly held by instructors in higher education [15] and were initially given to me by my fellow colleagues, I have found that it is important to state these assumptions explicitly to my students. The students in my classroom are often first-generation women who come to the classroom questioning their place in higher education or their abilities to succeed academically. My intent in explicitly communicating these assumptions is to reduce any sense of alienation they may be experiencing and to create a learning environment in which they feel they belong.

In orienting students to an inclusive classroom, I (the second author) begin by providing the guidelines for classroom discussion that will support an inclusive learning environment. I base my guidelines on those provided by Lynne Weber Cannon [16], which include such examples as, "Acknowledge that racism, sexism, heterosexism, and other forms of institutionalized oppression exist," "Assume that others are doing the best they can," and "Create a safe atmosphere for open discussion" (p. 130–131). In addition to these guidelines, I place a high value on clearly communicating academic expectations as well as ensuring students understand the classroom mechanics (e.g., on-line course management systems) which can be alienating or unfamiliar to some students. In the inclusive classroom, the instructor has an important responsibility to make any implicit assumptions explicit to the students to avoid any hidden curriculum which can exclude students without access to this information. This explicit description of the course and introduction to an inclusive classroom provide the foundation for the students to develop the classroom norms [17].

In providing a clear understanding of the course and the guidelines for interaction, the students get a sense of what the class is about and are ready to develop a set of norms for how they will participate and how the class will operate. In a smaller class, students can work as a class to formulate shared ideas for classroom norms through discussion. In a larger class, students can work in small groups to develop ideas for class norms. Once a list is compiled, the class can review the norms and offer objections or further suggestions. For this process of developing classroom norms to be effective and safe for all students, it is essential that the instructor be skilled in facilitating the discussion among students while simultaneously attending to the non-verbal communication needs of students.

2.2. Attending to the Emotional Landscape of Learning

2.2.1. Mindfulness

Along with attending to norms for interaction, I (the second author) attend to students' experience in the class through the practice of mindfulness. While mindfulness has been associated with psychological well-being and stress reduction outside of the classroom, there is also evidence that mindfulness has similar benefits if practiced in a learning environment [18]. I came to higher education from a career in mental health treatment; after my positive experiences using mindfulness in a treatment setting, I adapted the mindfulness practice for the classroom. I have since found that students genuinely enjoy the practice, which is associated with emotion regulation and managing distress. Students have reported to me that it is a beneficial part of my courses, so I have continued to use it in all of my classes regardless of topic. While the practice can be beneficial personally for the

student, mindfulness often connects to the course topics I teach as well (Understanding Psychological Disorders, Basic Counseling Skills, and Introduction to Clinical and Counseling Psychology).

Mindfulness is defined as a state of "conscious awareness" [19] (p. 289). I adapted the mindfulness instructions I use in my classroom from Dialectical Behavior Therapy developed by Marsha Linehan [20] as well as Jon Kabat-Zinn [21]. Although practice is not easy, the concept of mindfulness Linehan developed is quite simple in its instructions: just notice the present moment non-judgmentally. Included in these instructions is the idea that mindfulness is a practice, because it is not about doing it "right." For example, distractions are expected and serve as an important reminder to return to the present moment. The goal in mindfulness is not to avoid distraction, but to notice it when it occurs and then return to the practice. I lead a practice of mindfulness at the beginning of every class for 60 s. Students can choose to focus on their breath, sounds, or physical experiences, and a bell is rung three times at the beginning of practice and one time at the end of the practice. Occasionally, I will ask the class about anything they might have noticed: sounds, the passing of time, etc. I also incorporate opening readings as time permits and when it connects to classroom discussion.

Cultivating a practice of mindfulness can be a particularly useful strategy for students in developing an inclusive classroom. First, it offers the students a skill they can use to stop and notice intense emotions or difficult conversations that may occur in the classroom. I also refer students to the skills of mindfulness when taking exams. The framework of mindfulness supports the assumptions provided earlier about learning. Learning mindfulness is a process, not an end state; the same is true for classroom learning. Further, the skill of noticing the moment without judgment allows students to practice accepting themselves in these moments without judgment. Lastly, in an age of non-stop stimulation from phones and devices, mindfulness empowers students to create time to stop and breathe—to have distance from the stimulation of digital communication.

2.2.2. The Scientific Attitude

One concept from psychology I (the first author) draw on to support inclusion in the classroom is the scientific attitude, that is an attitude that encourages openness, curiosity, humility, and skepticism [22]. Introducing students to these characteristics is fundamental in the Diversity Lab included in my *Preparation for Working with Families* class. In an effort to share the lived experiences of a diversity of individuals and families, the Diversity Lab focuses on race, class, gender, ethnicity, religion, disability, and sexual orientation over the course of seven weeks. Each week opens with a cultural interview in which students reflect on and discuss their own social location on a particular identity, e.g., their relationship with power and privilege due to their race. Then we watch a movie, typically, a documentary in which we reflect on the social location and lived experience of the individuals and/or families presented in the video. (See Appendix A for the list of movies.) As the Diversity Lab draws on, the class increasingly reflects on how the identities we have explored intersect. For example, by the end of the lab, we are able to explore intersections of race, class, gender, ethnicity, and disability when we explore sexual orientation via the movie *Moonlight*.

For many of my students who are primarily White women, the exploration of their social location often involves acknowledging their own privilege which can be upsetting or at very least anxiety provoking. I (the first author) have found the scientific attitude an empowering way to encourage students on what can be an emotional journey. For example, I encourage an attitude of openness and curiosity about difference rather than fear and avoidance, and I create space for that exploration in the classroom. I also foster conversation and student reflections about their own resilience, and I strive to create a space for cultural humility and questioning. Connecting resilience and humility with skepticism and openness (i.e., recognizing that you might be wrong) supports students' ability to move from tears and guilt toward strength and empowerment as they find the courage to stay open and approach rather than avoid difference in the classroom. Furthermore, acknowledging the approach/avoidance paradigm and the scientific attitude empowers students with a language and coping strategy for understanding what may feel like primitive reactions to difference.

2.2.3. Silence and Voice

The Diversity Lab in the *Preparation for Working with Families* course brings to the fore the lived experiences and voices of those at the margins of the dominant discourse based in White, middle and upper-class values undergirded by Christianity, heterosexism, sexism, ableism, and cisgenderism [23]. Featuring alternative discourses in the classroom can be empowering, particularly for students of color whose voices and experiences are often silenced by the dominant discourse. Still, it is important to value diversity without oversimplification or tokenization. I (the first author) work to achieve this balance by bringing the lived experience and narratives of diverse people into the classroom through carefully selected source material for analysis and discussion. I do this, rather than primarily relying on students of color as the sole source of diversity in the class. The latter can lead to unintended but negative outcomes such as tokenism, e.g., asking students to speak for an entire race or religion. In contrast, by featuring a diversity of lived experiences from inside and outside of the classroom, I use videos in the Diversity Lab (see Appendix A) to bring students in conversation with diverse perspectives, where everyone is invited to engage and add to the conversation. Students of color may broaden, interrogate, and complicate the perspectives I bring to class.

As I (the first author) encourage openness, humility, skepticism, and resilience, I work to attenuate the potential burden that diverse students may feel to be the expert or to educate others which can result in additional emotional labor for these students [24]. In other words, by bringing in additional source material, such as carefully selected movies and videos, to facilitate the exploration of diverse identities, I work to relieve pressure diverse students may feel to be the voice or representative for their race or group in class. Rather than put the lives and experiences of my diverse students under a microscope in front of the class to be explored and dissected, I bring in outside material based in the lives and experiences of diverse people and families. Hence, diverse students are encouraged to speak and share (adding their perspectives) but also empowered with choice and the knowledge that they are not burdened with being the sole source of diversity in the class.

Still, there are tensions that arise when re-orienting the curriculum from a dominant discourse—that does not recognize race as an important aspect of identity and that generally views difference as deficient—to an alternative discourse that brings to the fore the lived experiences of oppression. For White students, the process can be disorienting, uncomfortable, and anxiety provoking. One challenge may be moving these students from tears and guilt toward resilience and empowerment. Students of color may simultaneously feel frustration and impatience with their White counterparts' lack of awareness, knowledge, and exposure. Hence, a revelatory moment of insight for one may feel like a microaggression for another.

Navigating these tensions can be challenging. Finding ways to support all students and meet them where they are at is essential. Photovoice can be useful in this endeavor, particularly with respect to processing race-based topics in multicultural coursework [25]. This activity requires students to find or take a photo that represents their reactions to the course content and then write a brief reflection explaining the connection. Paone et al. [25] suggest that Photovoice tends to generate more reflection on emotional responses to course content given the focus on the visual stimulus (a photo) which tends to tap into different areas of the brain than typical academic exercises such as papers, quizzes, and exams.

In the *Preparation for Working with Families* class, I (the first author) find Photovoice to be an invaluable tool for tracking the emotional journey of individual students in the class, and providing tailored, individualized, supportive feedback. For example, I can validate students of color with more advanced understandings of diversity who are frustrated by their White counterparts, and at the same time, I can support White and other students feeling conflicted about their privilege and struggling to grasp lived experiences associated with various identities. No matter their social location, I can meet students where they are and provide support and validation on their journey using the Photovoice assignments.

2.2.4. Summary

Creating an inclusive classroom environment involves welcoming students to the space, creating room for their voices and cultures, and attending to their learning needs from a more holistic perspective, especially the emotional landscape of learning. The focus of culturally sustaining pedagogy on bringing from the margins the experiences and voices of the oppressed undergirds inclusion in the classroom. We integrate universal design and culturally-sustaining pedagogy in our constructivist classroom by developing an instructional climate [8,26] that situates students as co-creators of knowledge who have the power to shape classroom norms, explore diverse identities, and narrate their own experiences.

3. Facilitating Authentic Dialogue

Activities that generate authentic dialogue center the student voice in the classroom and help create community. A key principle of universal design for instruction, developing a community of learners occurs through communication among students and between students and faculty [8,26]. Authentic dialogue that interrogates oppressive systems aligns with culturally sustaining pedagogy. Discussed below are two of the ways I (the first author) have structured opportunities for authentic dialogue in my classes to interrogate injustice and systems of oppression and to explore diverse identities.

3.1. The Fishbowl Technique

Fishbowl discussions that address socially relevant questions are one way I (the first author) stimulate authentic dialogue in my introductory psychology classes. Fishbowls are small group conversations of 5-6 students that happen in front of the whole class. Small groups are graded upon their ability to engage in respectful dialogue, offer divergent viewpoints, create space for all group members to contribute meaningfully, and integrate aspects of psychology. Small groups engage in discussion for at least five minutes. After the small group discussion has ended, the fishbowl is open to discussion from the rest of the class.

To stimulate authentic dialogue, I introduce the fishbowl question in class at the start of the activity and invite students to volunteer to participate. This generates spontaneity. I have learned that if fishbowls are introduced too early (e.g., all provided at the beginning of the semester), students may simply make notes or talking points and read from those for the entire five minutes. Although they do not know what the fishbowl question will be ahead of time, allowing students to volunteer for the fishbowl they participate in empowers them with choice, increases comfort with the activity, and taps intrinsic motivation, all important in a constructivist classroom. Moreover in line with culturally sustaining pedagogy, this activity brings a critical perspective to introductory psychology even as students cover traditional topic areas.

One of the fishbowls based in social psychology ask students to explore and unpack the all too frequent phenomenon of unarmed Black men being killed by police. Students are asked to examine how social psychology helps make meaning of or explain this tragic phenomen. In this fishbowl students tend to discuss implicit bias as well as racism. When studying nature and nurture, I introduce a fishbowl focused on the potential moral hazards of designer babies which gets at fundamental questions of who should have a right to live and exist in this society and who might be eliminated. These are existential questions for many with disabilities. In this fishbowl students are challenged to think about and discuss how to make room for and value difference in this society as well as the perils associated with technological advances aimed at "designing" more perfect humans. This theme is re-examined when studying sensation and perception with a fishbowl focused on cochlear implants that challenges perspectives based in ableism and a medical model of disability, i.e., disability represents brokenness that needs to be fixed by medical intervention. Here an introduction to the social justice model of disability that underlies universal design is apropo; that is, it is the oppressive society

or environment that does not make room for people with disabilities that is disabling. See Appendix B for sample fishbowl questions referenced in this section.

3.2. Cultural Interviews

In my *Preparation for Working with Families* class, cultural interviews provide opportunities for engaging in authentic dialogue, developing community and connection, and exploring power and privilege. Students engage in cultural interviews with a classmate during the Diversity Lab. I typically randomly assign students to interview a classmate each week. The cultural interview questions I use were given to me by my colleague Dr. Bryana French [27] who teaches a multicultural counseling course for doctoral students.

In general, students talk about how they feel about a particular social group membership (e.g., race, class, gender, ability status, religious or ethnic group, gender or sexual orientation). The interviewer asks how membership in a particular group has influenced the student's development, how the student has affirmed their social group membership, and about the parts or areas of their social group membership with which the student is uncomfortable. In addition, the interviewer asks about generalizations or stereotypes associated with membership in that particular group and about basic assumptions held about out groups.

Through a series of cultural interviews, students explore diverse identities with classmates and even the instructor as I (the first author) will often fill in when a student does not have a partner. I instruct students to rotate the role of interviewer and interviewee. Depending on the number of questions asked students may interview a classmate for up to 15 min; I usually keep time and tell them when to switch roles. I provide interview questions and ask the interviewer to really focus on listening and helping their partner explore and peel back the layers that comprise the lived experience of that particular diverse identity.

Cultural interviews can help to develop racial literacy which pushes back against a dominant discourse that minimizes race as an important aspect of identity and discourages talking about race [23]. In processing the experience each week, I often ask how many people had trouble discussing or finding words to describe the identity explored that week. Students are encouraged to think about why they lack language or a lens to describe their identity along a particular axis of diversity. Often students are surprised that they have never thought about or had to think about a particular identity before, and this is typically connected to privilege.

The opportunity to engage in these structured interviews in the classroom normalizes diversity as central to understanding individuals and families. Moreover, because everyone has the opportunity to be both the interviewer and the interviewee, the process underscores that diversity belongs to everyone. Everyone has a race and culture. Race and racism do not simply belong to people of color; diversity is not simply about the "other". Rather these issues of diversity are about all of us.

3.3. Summary

Activities designed to facilitate authentic dialogue utilizing a critical perspective can deepen approaches to culturally sustaining pedagogy focused on constructing knowledge by interrogating oppression in people's lives. Moreover, authentic dialogue can facilitate the development of a community of learners, undergirding a key element of universal design for instruction [8,26]. Cultural interviews and the fishbowl technique are two practical strategies for generating authentic dialogue in the classroom in ways that integrate universal design, culturally sustaining pedagogy, and constructivist approaches to teaching and learning.

4. Engaging in Assessment

Attention to what the class feels like is an essential component of inclusive pedagogy. In line with universal design, this involves paying attention to the physical space. I (the first author) am fortunate to work at a large research university with access to active learning classrooms. The circular

tables, microphones, and multiplicity of projection screens support the ability to engage in authentic dialogue and share the space. The circular tables or circles facilitate small group discussion, while the microphones facilitate large class discussion—better enabling people to hear each other's voices from across the room for example. The multiplicity of projection screens makes visual material more accessible regardless of where one is seated. Moreover, aligned with a constructivist approach to teaching and learning, the instructor table is not located in the front of the classroom. In fact, there is no front of the class in these active learning spaces. Whiteboards are located all over the room and near student tables, generating the expectation that students as well as the teacher will use these boards to work together, problem-solve, and construct knowledge. Students can even project their computer screens to the class from their seats. Hence, the physical space supports an inclusive and constructivist pedagogy aimed at sharing the space in active learning. The importance of the physical space to the feel of a class should not be underestimated, and responding to the ever-changing dynamics or energy in the classroom requires constant attention and assessment.

4.1. Assessing Classroom Dynamics

Since an inclusive classroom is designed with student participation at the center, it is essential to obtain not only formal assessment data but also ongoing informal feedback directly from students. Having been trained in counseling psychology, I (the second author) rely heavily on my informal interactions with students as data to inform not only my assessment of students' learning but also my understanding of students' experiences in the classroom and thereby my teaching. Students are continually providing me with data on what they are learning in the course and how they are experiencing the classroom. Students' facial expressions, body postures, eye contact, and verbal responsiveness reflect to me their engagement in the course and the value they are placing on their experience of learning in the classroom. While it is impossible to respond to every facial expression, seat shift, or eye roll (nor is it necessarily valuable), it is beneficial to notice patterns of student response. For example, most if not all instructors have had a lecture, exercise or discussion where it becomes apparent that the students are no longer attending and therefore no longer engaged in learning. This conclusion is drawn from an apparent pattern of non-verbal response (facial expressions, body posture, eye contact, etc.) as well as a lack of verbal engagement.

It is through the gathering of these data that I (the second author) know I need to stop and attend to this feedback and ask questions not only of myself but also of the students. Hence, I ask myself: "What is happening right now?", "What is not working?", "Am I missing something?" This type of mindful practice of stopping, noticing, and asking questions is useful and informs the next step I take in the classroom.

In addition to the ongoing interaction with students in the classroom, I (the second author) have found that informal one-on-one or small group interactions offer invaluable data regarding how students are experiencing the class and progressing in the course. While brief, the informal interactions, which occur just before or just after class, are particularly beneficial. More than once I have been informed about important information in these informal exchanges, such as one instance in which I learned that students' current grades were inaccessible in our course management system. I had previously asked the entire class if they were able to locate their course grades in the system (and received agreeable nods), but it was only by an informal conversation with an individual student that I found out that the information was not accessible. These types of interactions may be particularly beneficial for students who are reluctant to ask questions in front of the whole class.

Lastly, I (the second author) conduct an informal midterm assessment of students' experiences in the class by asking three questions [28]: In regards to your learning experience in this class, what are things I (the instructor) should start doing? Keep doing? Stop doing? The students write their responses to the prompts on pieces of paper without their names. At the next class, I provide a summary of the feedback received from the students by highlighting the patterns of response. While the feedback about what is working is helpful and encouraging to read, I review it with the students fairly quickly.

However, it is any negative or critical feedback that is particularly beneficial to discuss with the students. I facilitate a class discussion about options for responding to any patterns of concern and attempt to retrieve any suggestions the students may have. Inevitably, some students will provide feedback such as "Stop giving exams," but the predominant responses are insightful, informative, and impact my teaching in the course. Surprisingly, even the comments regarding the discontinuation of exams can be informative. I will ask the students, "Is this feedback about test anxiety or about being overwhelmed?" or "Is this feedback reflecting a concern that the exams are poor measures of learning?" Engaging with students about this feedback can not only be informative for me as an instructor about what students are experiencing, but it also builds rapport. The students learn that I am listening and responsive to their feedback, which facilitates an inclusive instructional climate and a strong student-instructor relationship that is important to student outcomes [29,30], particularly for those experiencing barriers to entering and/or staying in higher education.

4.2. Assessing Student Learning

Informal assessment and formal assessment go hand in hand. I (the first author) discussed two formal assessments or graded assignments (Photovoice and Fishbowls) in the previous sections. Drawing from universal design, culturally sustaining pedagogy, and a constructivist approach in the classroom in this section, I will describe three other approaches (quizzes, papers, and projects) I use to facilitate and assess students' learning.

4.2.1. Quizzes

In an age of information overload, fake news, and alternative facts, the ability to engage in convergent thinking to eliminate distractors and hone in on the best, most solid answer to an issue is increasingly important. This kind of discriminative analysis underlies my (the first author's) assessment of student learning via multiple-choice quizzes. Questions for each quiz are randomly selected from a larger pool of items. Aligned with universal design [8,26] these quizzes are delivered electronically, are not timed, require low physical effort, and can be taken in a location of the student's choice. Moreover, in line with tolerance for error [8,26], students can take the quizzes more than once—although they may not have the same questions each time.

Integrating a constructivist approach with universal design, I (the first author) include multiple-choice quizzes in my courses to develop convergent thinking and other skills. In my *Preparation for Working with Families* course, for example, when students are not performing as well as they would like on the chapter quizzes, I encourage them to practice the consultation skills professional helpers rely on to determine the best way forward when faced with issues. Helpers are trained to consult colleagues, professional texts (e.g., ethical codes), and supervisors. I encourage students to do the same, i.e., use their textbook and classmates, to improve their performance on quizzes. In line with social constructivism, my approach to quizzes underscores that learning is relational and occurs in a social context; hence, taking quizzes with a fellow classmate can facilitate learning how to discriminate among options and choose the best answer based on the information provided. Moreover, and importantly, because there are always errors in coding, I strongly encourage students to consult with me about answers they believe are correct but are marked wrong on the quiz. Key to universal design and an inclusive instructional environment, I model a tolerance for error, openness, and resilience in correcting my mistakes in the classroom.

4.2.2. Papers

I (the first author) find that papers are a fruitful way to integrate constructivist and culturally sustaining pedagogies. For example, the Diversity Lab referred to earlier ends with a Diversity Paper in which students narrate their own understandings of diversity and their diverse identities. This narrative includes unpacking attitudes passed down in their families, and their own basic assumptions about race, class, gender, ethnicity, religion, disability, and sexual orientation. In this

discussion, students are also asked to envisage what social justice work looks like for them. The narrative identity work involved in writing these papers integrates the self-authorship [31] connected with constructivist approaches into culturally sustaining pedagogy by valuing students as cultural beings and supporting their cultural literacy. Although I include a grading rubric that I share with students as I introduce the assignment, I generally pay attention to students' depth of reflection and their ability to articulate an understanding of diversity in assessing student learning. In line with universal design and the principle of low physical effort [8,26], all papers are turned in online.

4.2.3. Projects

Well-designed projects can also be useful for advancing an inclusive pedagogy based in constructivism, culturally sustaining pedagogy, and universal design. One example that I (the first author) will share here is called *The Psychology for the Social Good Project*. *The Psychology for the Social Good Project* is a two-part project in which students use psychological concepts to create and critically evaluate media in order to address an important social issue.

The Psychology for the Social Good Project is designed to empower students to use their education to think critically about the kind of society in which they want to live and to contribute to the social good. For this project groups of 5-6 students apply concepts they have learned in psychology—like the serial position effect, i.e., the fact that we remember best what is at the beginning and end of a message—to construct an engaging website aimed at advancing the social good. For this project, each student takes on a specific role as either a writer/content generator or as a graphic designer to co-construct the website. From a constructivist perspective, students are not only encouraged to construct knowledge in the form of a public messaging campaign but also empowered to use their voices to shape society. Over the years, my undergraduate psychology students have designed websites to address issues such as sex trafficking, Islamophobia, sexism, rape culture, and homelessness—applying psychological concepts to make their websites meaningful and impactful in ways that get their message across.

The opportunity for students to use their voices to push back against oppression and discrimination in society integrates aspects of constructivism and culturally sustaining pedagogy. I (the first author) developed the *Psychology for the Social Good Project* after a few years of teaching introductory psychology and ending the semester with a typical 100 question multiple-choice exam. Although I very much enjoyed teaching the class, the final exam was always rife with anxiety, fear, and an energy that did not match the rest of the semester. Once I implemented the *Psychology for the Social Good Project* as my final exam, these were some of the most enjoyable days of the class.

The last day of class—during the scheduled final exam when students' websites are projecting from the screens on the walls of my classroom—is an incredibly gratifying testament to constructivist teaching and learning and a fulfilling way to share space in these final hours. During this time, each group of students is assigned to critically evaluate another group's website, and they are required to turn in their critical analysis online by the end of the scheduled final exam. In alignment with universal design, there is flexibility in who types or turns in the critical analysis for the group. Moreover, students are given a rubric for the critical analysis that I review with them at the beginning of the exam and project for them during the course of the exam. Listening to students argue during those two hours over which psychological concepts they detect in their critical analysis is edifying. Moreover, watching them work through and tease apart the logical arguments in their classmates' website by taking the positions to their logical extreme is delightful. Finally, listening to students evaluate evidence—trying to discern authority, credibility, and bias—as they critically analyze media makes me feel like this is what higher education is all about. The teaching assistant and I grade each group's website and critical analysis, where students receive the grading rubric for the website when I introduce the assignment. Additionally, students are evaluated on their ability to perform their role in co-constructing the website by their fellow group members; expectations for performance and the rating form are also shared when I introduce the assignment. Taking the average rating of each group member to determine the

role performance grade, assessment, and grading for this final project is shared between students and instructional staff.

4.3. Summary

In our approach to inclusive pedagogy that integrates universal design, culturally sustaining perspectives, and constructivism, assessment is multifaceted—directed at classroom dynamics, students' experience of the course, and student learning—and shared between the instructor and students. Maintaining principles of universal design such as an inclusive instructional climate and community for learning [8,26] is key. Informal assessments can be useful. In this section, we discuss informal assessment strategies and provide examples of (a) how formal assessments such as multiple-choice quizzes can be informed by social constructivist approaches that are integrated with universal design and (b) how papers and projects can integrate constructivist approaches with critical perspectives that advance culturally sustaining pedagogy.

5. Implications

Although we have focused on integrating constructivist approaches with universal design and culturally sustaining pedagogies in the social sciences, we believe that such an integrative approach to teaching and learning can undergird efforts toward inclusion across disciplines, including STEM fields. For example, inquiry-based learning in the sciences has its roots in constructivism, where students are active participants in the learning process [32]. Moreover, there is some evidence to suggest that this approach is superior in increasing scientific literacy when compared to traditional teaching methods [33]. We believe that integrating universal design and culturally sustaining pedagogies with inquiry-based learning can result in additional gains associated with inclusive pedagogy. Integrating constructivism with universal design and culturally sustaining pedagogy provides a coherent lens for viewing students holistically as social, cultural, emotional learners and creating space in the educational setting to attend to students' social, cultural, and emotional needs. Intentionally creating spaces where students can bring their whole selves to learning across disciplines, including and especially the STEM fields is needed, and it is beginning to happen. For example, at the University of Minnesota, faculty in our Chemistry Department are providing leadership on the University's student mental health initiative—recognizing, accepting, and advocating for educational and institutional responsiveness to students with disabilities, specifically disabilities related to mental health. An intentional theoretical perspective, such as the one we present, grounded in teaching and learning can strengthen these efforts by informing approaches to the STEM classroom. In fact, we believe that creating access and space for student identities, including their socio-cultural identities, in classrooms is ripe with the potential to make STEM fields more accessible and attractive to women and minoritized groups who are often difficult to recruit and retain in these fields.

6. Conclusions

The integration of universal design and culturally sustaining practices with constructivist approaches to teaching and learning has vast potential to advance inclusive pedagogy. We agree with Waitoller and Thorius' [4] assertion that culturally sustaining pedagogy can broaden and deepen conversations about inclusion and access within universal design. Moreover, constructivist approaches to teaching and learning provide educators with a broad avenue for integrating theory and practice in the classroom. Throughout this paper, we provide examples of ways we integrate universal design, culturally sustaining pedagogy, and constructivist approaches to teaching and learning, particularly with respect to creating an inclusive instructional climate, developing a community of learners, facilitating tolerance for error, and incorporating a holistic approach to students that values their cultural and other identities.

Integrating theory and practice, we share practical strategies for co-creating and sharing the space with students, facilitating authentic dialogue, and engaging in assessment. Highlighting the

importance of the emotional landscape of learning and assessing classroom dynamics, we also discuss strategies for attending to silence and voice in the multicultural classroom. For us, access and inclusion are about developing classroom environments and curricula that welcome and validate students across a range of diverse identities including race, class, gender, ethnicity, disability, religion, and sexual orientation, and we hope that our work inspires others toward advancing a more inclusive pedagogy.

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Appendix A

Diversity Lab Topics and Videos

Topic	Video
Social Class	Tough Love, Director Stephanie Wang-Breal
Race	Off and Running, Director Nicole Opper
Ethnicity	Twin Sisters, Director Mona Friis Bertheussen
Religion	Between Allah and Me and Everyone Else, Kyoko Yokoma
Disability	Louder Than Words, Director Saj Adibs
Gender	Growing Up Trans, Frontline Documentary
Sexual Orientation	Moonlight, Director Barry Jenkins

Appendix B

Sample Fishbowl Questions

Fatal Shootings of Unarmed Black Men

- The fatal shooting of Trayvon Martin by George Zimmerman took place on the night of 26 February 2012, in Florida. Martin was a 17-year-old African American high school student temporarily living in the gated community where the shooting took place. Walking home at night wearing a hoody, Martin who was unarmed was shot by Zimmerman during an altercation between the two.
- 23 November 2012, Michael Dunn pulled into a gas station in Jacksonville, Florida. He parked next to a red Dodge Durango full of African American teen-aged boys. Dunn didn't like the loud music—"rap crap", as he called it—coming from the teens' SUV. So he asked them to turn it down. The teenagers did not comply. Dunn felt threatened and shot into the SUV killing 17-year-old Jordan Davis. The teenagers were unarmed.
- This year, Michael Brown, an unarmed black teenager, was shot and killed Saturday, 9 August, by Darren Wilson, a police officer, in Ferguson, MO, a suburb of St. Louis.
- How does social psychology help explain what happened?

Designer Babies

- Aided by inexpensive DNA-scanning techniques, medical personnel are now becoming able to give would-be parents a readout on how their fetus' genes differ from the normal pattern and what this might mean.
- With this benefit comes risks. Might labeling a fetus for example, "at risk for a learning disorder" lead to discrimination or self-fulfilling prophecy?
- Assuming it was possible should prospective parents be able to take their eggs and sperm to a genetics lab for screening before combining them to produce an embryo?

Deaf Culture

- Cochlear implants can help children become proficient in oral communication (especially if given to them as preschoolers or even before age 1).
- Deaf children who grow up around Deaf people more often identify with Deaf culture and feel positive self-esteem.
- Deaf children who grow up in signing households whether by Deaf or hearing parents express higher self-esteem and acceptance.
- Do you think that implanting cochlear implants in prelinguistically deaf children discriminates against and suppresses Deaf culture?
- Do you believe that parents should have the right to have a cochlear implant implanted in their prelinguistically deaf children before the age of consent?

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